December 1955

RAILWAY TRACK and STRUCTURES

DRAMA
OGRESS:
—The Erie

One of Five Specialized Railway Age Publications

THE NATIONAL LOCK WASHER COMPANY, NEWARK 5, N. J., U. S. A.

A COMPLETE LINE OF RAILWAY SPRING WASHERS

WORKING TOGETHER *for a* COMMON GOAL!

There are many incentives which spur America's business, and its employees, to the ever-increasing heights of inventiveness and productivity enjoyed in this nation today.

Profit, prestige, satisfaction with a job well done, desire to improve standards of living, creativeness — all play a vital role in every business organization.

They have been, and will continue to be, part of the motivating force behind the tremendous strides made in the past decade at Kershaw Manufacturing Company.

But there's one other ingredient at Kershaw, and we think it is the most important, by far.

Kershaw Manufacturing Company is dedicated to the pleasant task of helping America's railroads solve whatever trackwork problems they might have and thereby attain even higher standards of successful operation.

At Kershaw, we are truly working with the railroads for a common goal.

KERSHAW
MANUFACTURING CO. INC.
MONTGOMERY (K) **ALABAMA**

TRACKWORK EQUIPMENT DEVELOPED AND PROVEN ON THE JOB

KERSHAW BALLAST REGULATOR, SCARIFIER AND PLOW — KERSHAW KRIBBER — MOCAR CRANE — UTILITY DERRICK TWO-TON RAIL DERRICK — CRIB ADZER — STANDARD JACK-ALL — TRACK CRANE—TIE REPLACER—TIE BED CLEANER TRACK BROOM — UNIVERSAL SET-OFF ASSEMBLY — BALLAST UNDER CUTTER-SKELETONIZER — BALLAST CLEANER AND DISTRIBUTOR — ROTARY TRACK MOWER — SPOT-TAMPER — TIE SPACER

LONGER LIFE FOR SWITCH POINTS AND STOCK RAILS rewards the road that installs Bethlehem's new Switch Point Guard Rail. This rugged little guard consists of a 4 ft 9 in. length of rail, heat-treated for durability and securely bolted to the base plates. As the photograph shows, the head of the guard rail stands higher than that of the running rail, shoving wheels away from the points of the switch. This provides derailment protection, too, against sharp flanges and worn points. The beveled ends provide an easement feature that softens the shock to car and lading. The guard rail is reversible so that you can use it on either the right- or left-hand side of the track. The best way to appreciate this faithful watchdog is to see it in action. A Bethlehem representative will be glad to arrange a demonstration near you. Just drop a line to our nearest sales office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
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BETHLEHEM STEEL

BETHLEHEM STEEL

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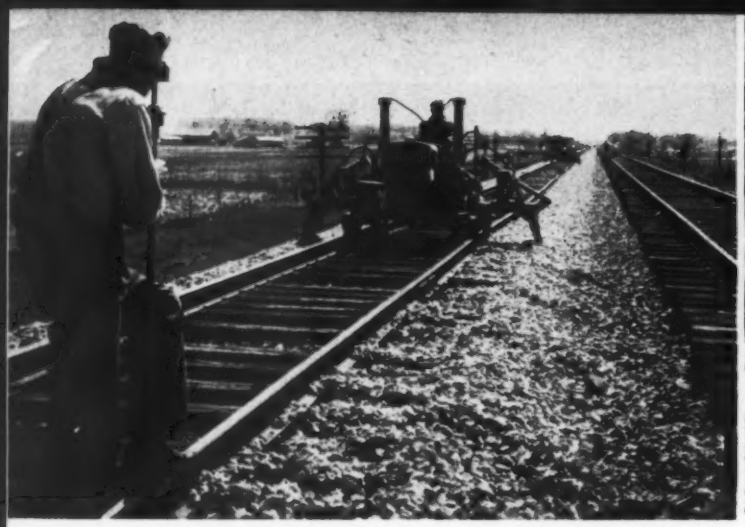
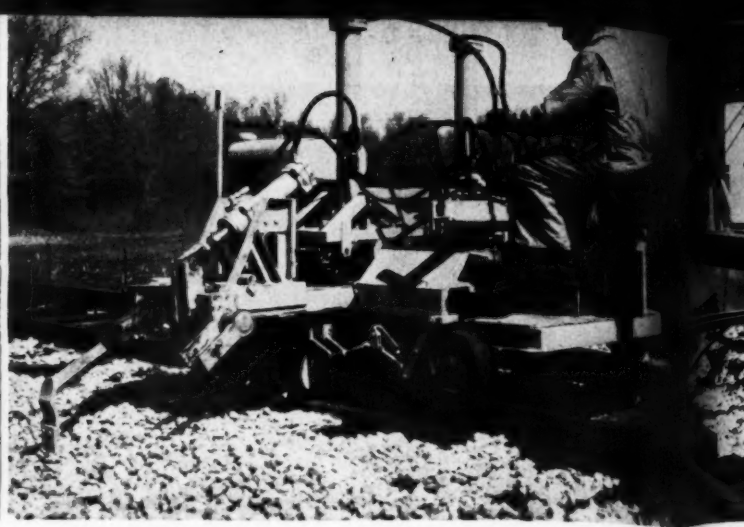


KERSHAW Jack-All is being used to raise track ahead of the timbering operation.

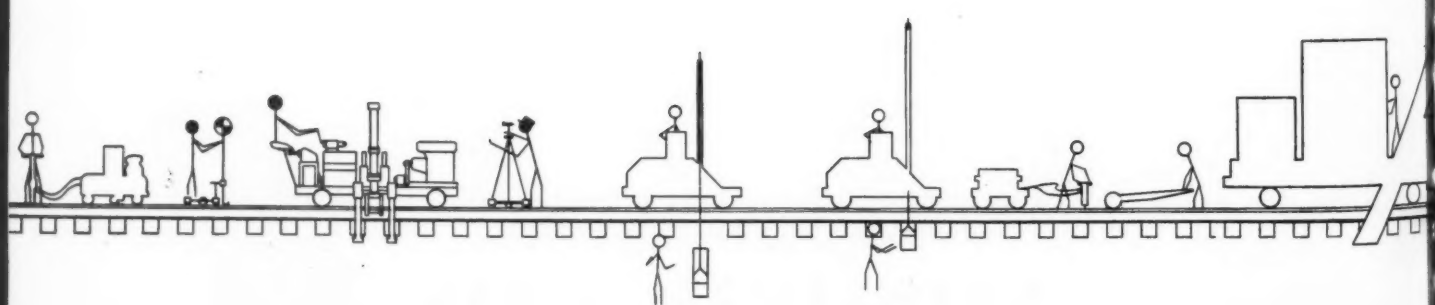


Above photograph shows detail of tamping foot used to catch-off adjacent ties. Track is raised with Jack-All.

KERSHAW

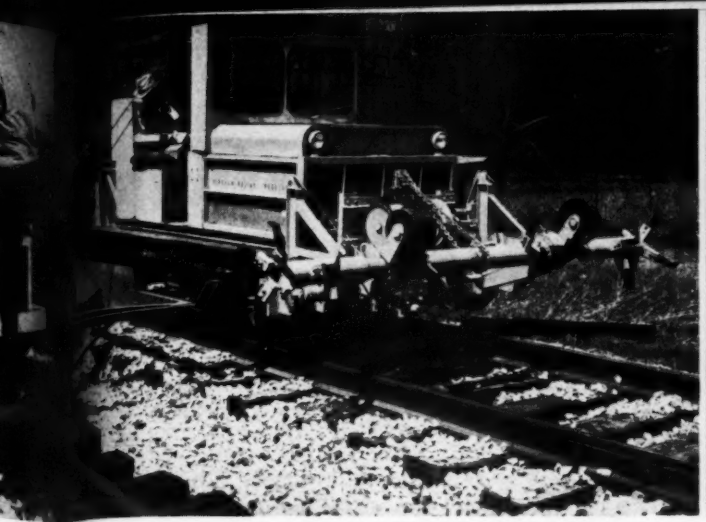
MANUFACTURING CO. INC.

MONTGOMERY ALABAMA



Kershaw Jack-All

Track raise of about 3 in. made with Jack-All. Assistant foreman uses peep sight to line up sighting block on Jack-All with spot board.

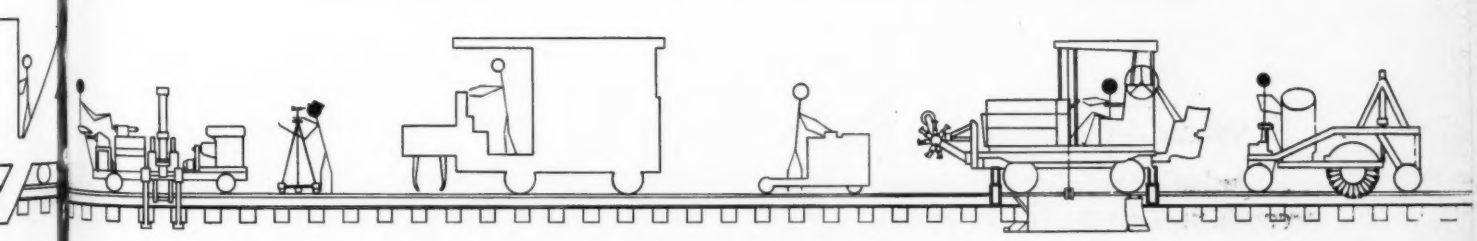


Ballast Regulator with crossing scarifier attachment is used with the reconditioning gang to scarify and regulate the ballast and remove asphalt and other forms of road crossings.

After track is surfaced, the Track Broom is used to remove ballast between rails and on the tie heads, placing it on the ballast shoulder.

Kershaw Manufacturing Company is extremely proud that, of the 11 machines in the Erie Reconditioning Gang indicated below, four are Kershaw machines. These Kershaw machines are shown above and at left actually at work in the Erie Gang.

ERIE



Kershaw Jack-All

...fections and minor irregularities ...original raise are corrected by sec... ...Jack-All with operator, foreman ...d trackman, who picks up oc... ...sional low spot.

Kershaw Ballast Regulator And Plow With Crossing Scarifier Attachment

Ballast Regulator fills in weak spots, knocks down high spots, and shapes up ballast shoulder and intertrack space. Operator of this machine also handles . . .

Kershaw Track Broom

. Track Broom which is used to sweep ballast off rails and ties, thus completing job. Operator alternates back and forth between two machines.

"On-Site" Housing and Field Offices

Engineered to Your Specific Needs

Special Services by Roycraft

27 Years' Experience

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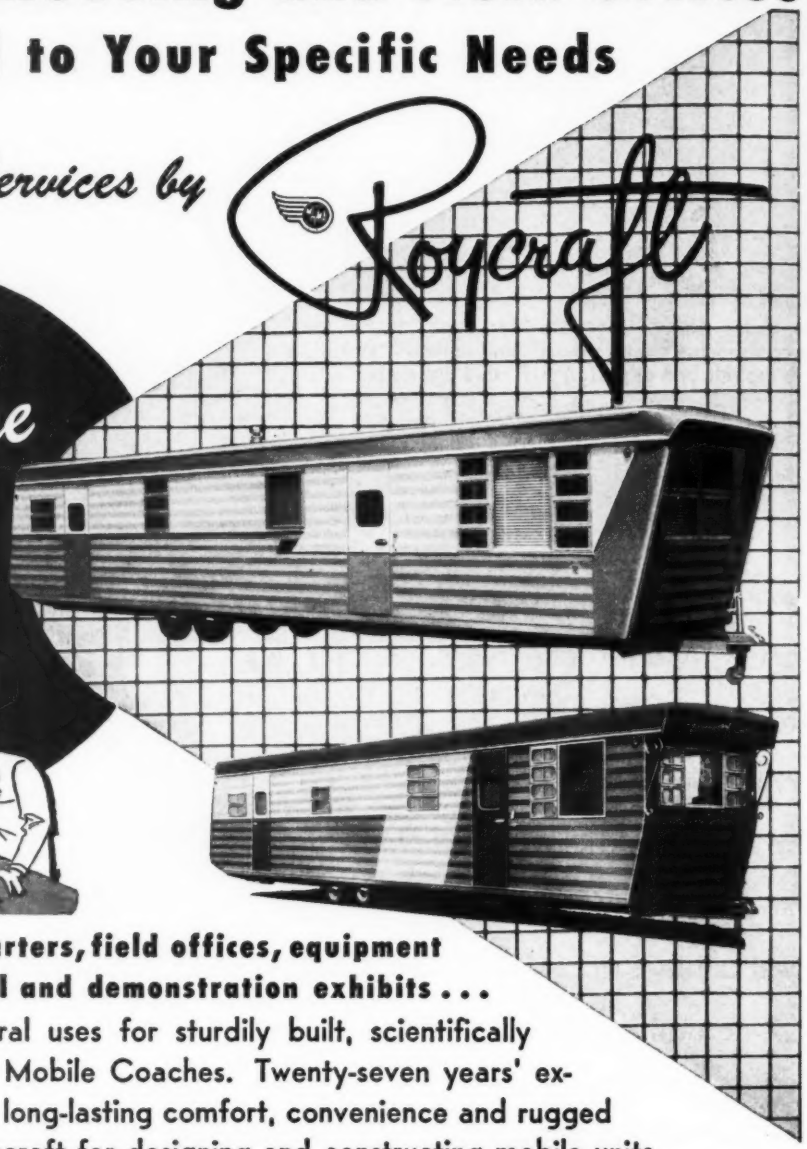
- Manufacturing



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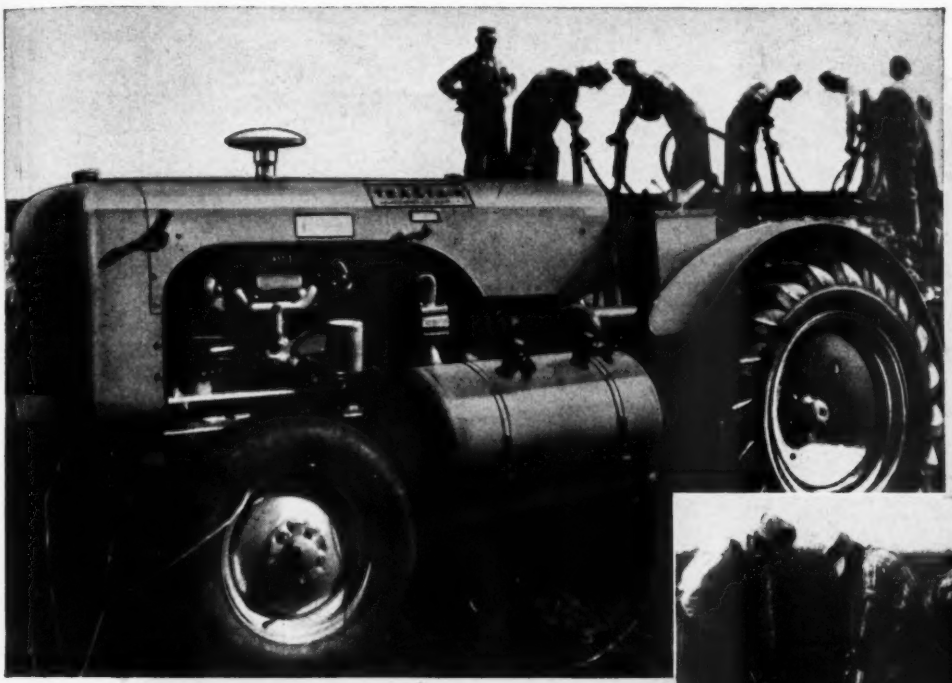


Get Rid of Slow Orders – in a Hurry

... use the mobility of Le Roi Tractair and the easy holding of Cleveland Tampers, to tamp your bad sections faster

LE Roi's Tractair unit is an off-track compressor-tractor that has good traction and low center of gravity. It readily crosses or straddles heavy-duty rail. It climbs embankments and works on a two-to-one slope with safety. That's why Le Roi Tractair can take air power anywhere, can provide you with a quick, easy way of getting rid of slow orders caused by bad sections of track.

And, since the Tractair unit compressed-air output has been increased from 105 cfm to 125 cfm you can handle four, easy-holding, Cleveland C10T, heavy-blow tie tampers, with air power to spare. The fast, hard-hitting blow, and easy-holding qualities of the Cleveland machine help your section hands do faster, more uniform work.

And Tractair can do many more jobs besides tamping — such as driving spikes, breaking pavement, driving moil points for grouting, powering earth augers, ditching, light grading, weed mowing, stockpiling ballast, cinders, etc., handling off-season work for B&B, Signal, T&T, and Water Service Departments.

Get all the facts on this redesigned Tractair with its increased power. Write our Railroad Sales Department, 327 South LaSalle Street, Chicago 4, Illinois, or to us for our latest bulletin.

T-37

LE ROI *Division of Westinghouse Air Brake Co.*

Milwaukee 1, Wisconsin

PORTABLE AIR COMPRESSORS

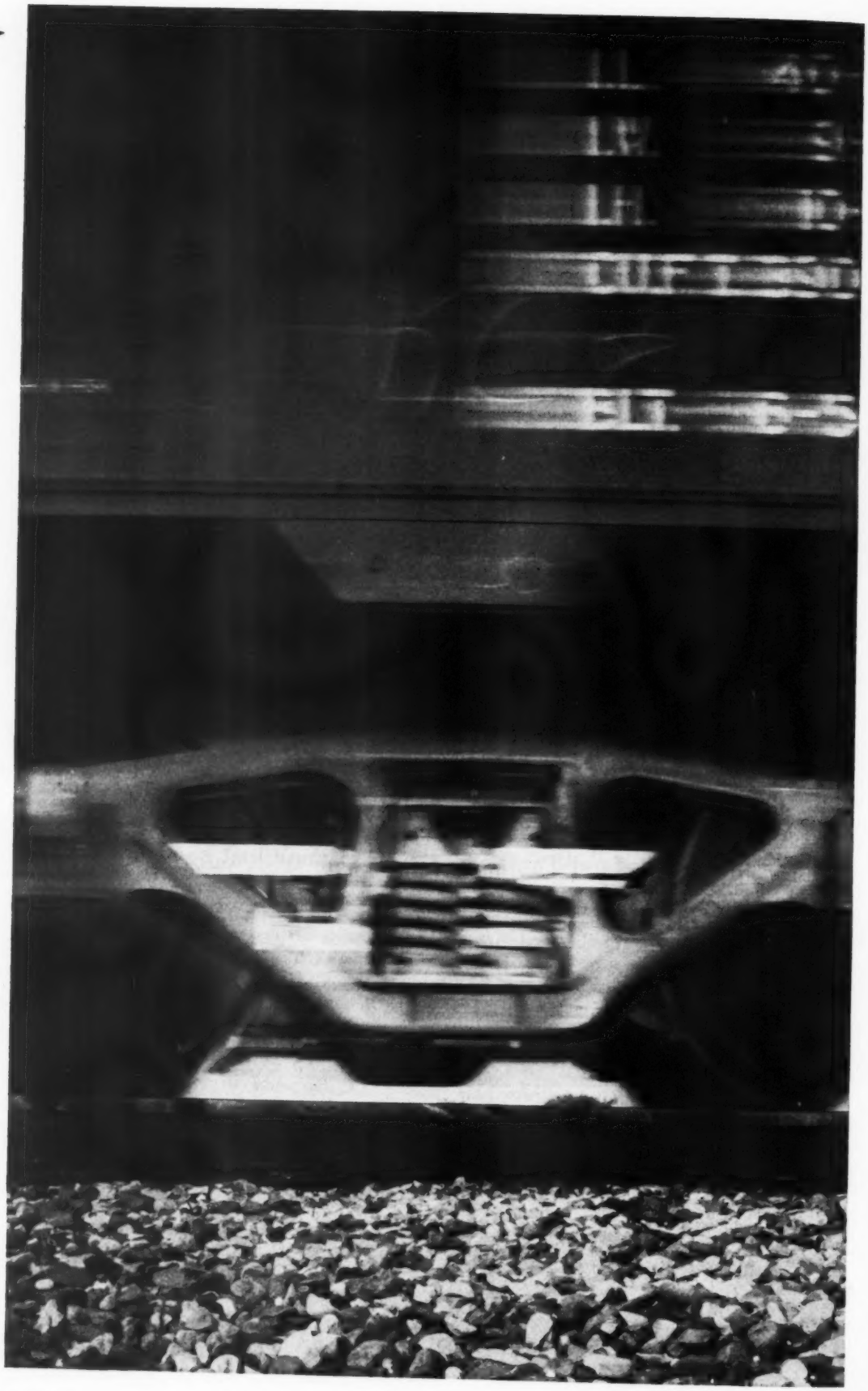
TRACTAIR

STATIONARY AIR COMPRESSORS

AIR TOOLS

ENGINES

DOW



. . . destination: East, West, North or South

LADING ROLLS

. . . over roadbeds kept grass and weed free with Dow products

No churning track when roadbeds are kept clear of grass and weeds with Dow herbicides! To assure smooth rolling for both freight and passenger traffic—Dalapon Sodium Salt 85% teams up with 2-4 Dow Weed Killer, Formula 40 to maintain *clean* ballast and berm. The two products can be combined to control grasses and broadleaved weeds in roadbeds.

For brush-free right-of-ways—neat-looking and economical to maintain—a low-cost spraying program should be built around Esteron® Brush Killer, Esteron 245 and Esteron Ten-Ten.* Write for information on how these five Dow vegetation control products can help you keep your service up and maintenance costs down. Technical service and assistance are yours on request. THE DOW CHEMICAL COMPANY, Agricultural Chemical Sales Department, Midland, Michigan.

*Trade-mark of The Dow Chemical Company.

you can depend on DOW AGRICULTURAL CHEMICALS DOW

RACINE
Hydra-Quad TAMPER
(Patent Pending)

Just one man operates this four-tool ballast tamper

Here's a completely hydraulic machine that tamps more track per man per day . . . and does it more uniformly. One operator controls the vertical movement and lateral position of four tampers through two finger-tip hydraulic valves. *Each tamping gun acts independently to insure full compactness of ballast at all points.* All four tamping guns automatically tilt to carry ballast under the tie at proper depth. To accommodate crooked ties, the operator simply swivels the main head.

The Hydra-Quad tamper is easy to adjust for varying rail heights and wider-than-average ties. Each gun is equipped with a quick-change tamping bar holder.

Drop-down and outboard wheels insure easy removal from track. Hydraulic cylinder raises and pivots the machine. Power winch assists in rerailing. Movement from tie to tie is powered by a fluid motor that also operates the power winch.

One more flexibility feature: Off-center outrigger mounting permits two men to operate machines on opposite rails to tamp both tie ends simultaneously. Send for free folder and specifications. Address **RACINE HYDRAULICS & MACHINERY, INC.,** 2038 Albert St., Racine, Wisconsin.

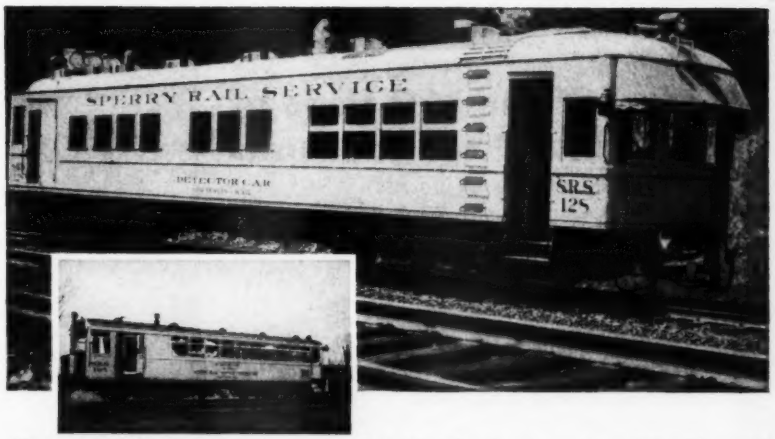
Lease or time purchase plans are available.

RACINE

HYDRAULICS & MACHINERY, INC., RACINE, WISCONSIN

ERIE

IMPROVES TRACK SAFETY CONSISTENTLY SINCE 1929 with SPERRY RAIL SERVICE



"It took us three days to cover the first 22 miles due to various difficulties with the early equipment," Mr. Blowers recalls. "However, Sperry's capable crew made repairs in the field and kept the inspection going with excellent results. Of the rails they thought contained hidden defects, a very high percentage proved defective on breaking." Constant development over the years has resulted in a modern fleet of 17 cars whose performance is unbelievably superior to the Detector Car (inset) which first served the Erie.

"I was Division Engineer back in 1929 when we scheduled our first test with Sperry Rail Service," states Mr. B. Blowers, Chief Engineer, Erie Railroad Company. "The Detector Car we used was, I believe, one of the first developed, and I rode with its crew almost continuously for ten days."

"We want to find defects in our rails before they reach the danger state," Mr. Blowers continues. "And Sperry's testing effectiveness is shown by the fact that, during our 1954 Spring testing, 87% of the defects found were small size (under 20%); and, during our Fall testing, 84% were small. This is valuable protection against accidents and delays to our heavy, high-speed trains."

To give safer, faster service at lower cost, the Erie is constantly modernizing with remote control interlocking, CTC, mechanized track equipment, and many other improvements. Mr. Blowers adds, "Sperry testing is part of this program. At present, we test main line tracks in both Spring and Fall; the balance of our more important branch lines are tested once each year. Close cooperation between Sperry crews and our division operating personnel cuts the time loss to a minimum during Detector Car movement."

Sperry Rail Service will continue to meet rail inspection requirements with the most advanced equipment our research and engineering can provide. Our trained personnel serve you with the skill only long experience can assure. For information on any nondestructive testing application you may have, call or write us today.

Sperry

FIRST IN RAIL TESTING

SPERRY RAIL SERVICE

Division of Sperry Products, Inc.
Danbury, Conn.
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One of the 160 Uses of CONCRETE on Railroads

NO. 28 OF A SERIES

Portland cement pressure grouting was used by the Virginian Railroad to stabilize a high fill near Westgate, Va. that was costing thousands of dollars per year to maintain.

Pressure grouting of fills is just one of the more than 160 uses for portland cement and concrete which enable American railroads to improve service and save time and money. The moderate first cost of such improvements—plus their long life and low maintenance cost—result in true ***low annual cost.*** This saves money for other budget items.

Write for free literature on pressure grouting procedures. Distributed only in the U. S. and Canada.

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A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

RAJO...

For the Best In Rail Joints

Photo courtesy of Erie Railroad

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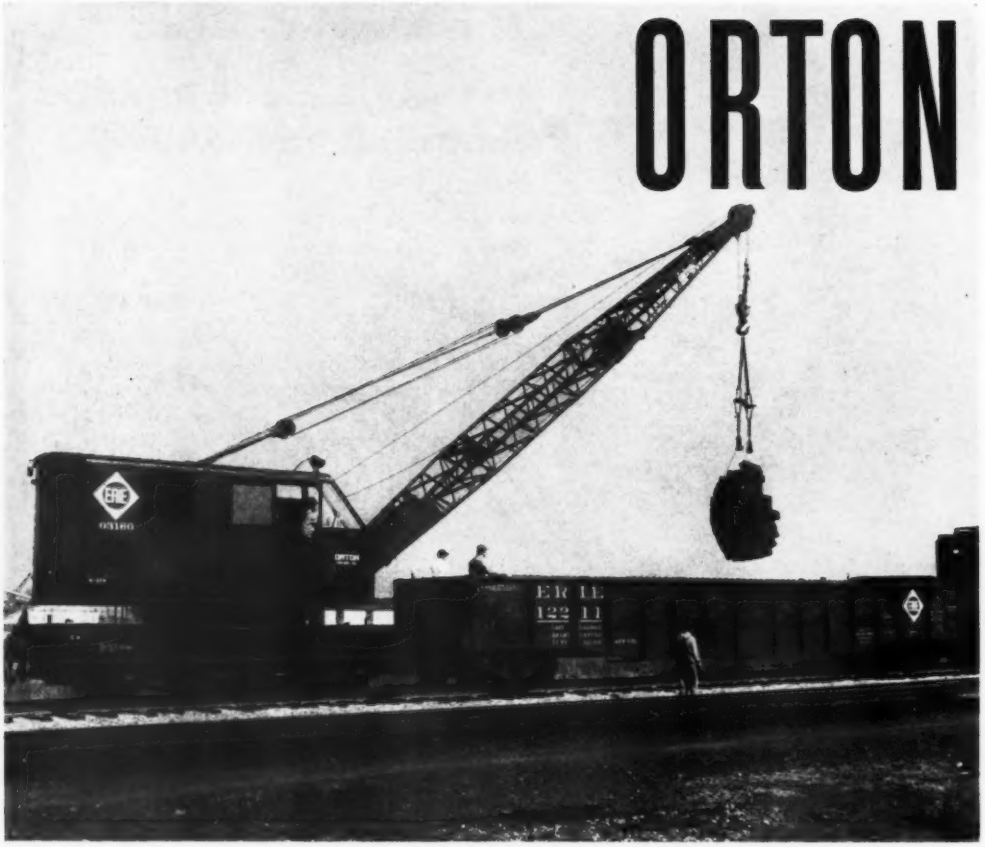
ORTON



"helps us keep costs *down*... standards at a high level."

. . . Blair Blowers,

Chief Engineer, Erie Railroad

ONE OF 12 ORTON CRANES PURCHASED ON AN *UNRESTRICTED* 2-YEAR SERVICE GUARANTEE!

The Erie wanted a high standard of efficiency for its track and bridge and building programs.

Orton is vitally interested in the long-range performance of its cranes in the hands of the users . . . This combination led to the sale of twelve 25-ton cranes on a 2-year unrestricted service policy guaranteeing Orton service—*without charge*—from instruction of operators to the supply and installation of necessary parts.

Periodic inspection, continuous availability of a field engineer and prompt replacement of wearing parts maintained "a high level of standards" for Erie maintenance and construction programs.

High standards breed high efficiency, which naturally means lowered costs.

Literature is available on the type of crane (or pile-driver) you want. Also, if you are interested in a *true* lease plan, request the ORTON *Craneleasing brochure.*

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SPOT-AIR

36 cfm

puts you on the RIGHT TRACK for low-cost air power

No other Portable Compressor offers you all these advantages for "on line" service

- Completely self-contained
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- Compact—fits 27" x 27" floor space
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- Easily maintained
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Here you see one Ingersoll-Rand Spot-Air compressor operating four I-R tie tampers on a typical maintenance of way job. With its wheelbarrow mounting, this completely self-contained, gasoline powered compressor can easily be rolled along the right-of-way by one man—keeping close to the work and permitting the use of short, easily handled hose connections.

The Spot-Air is so small that you can set it down just about anywhere—on rough terrain, narrow shoulders, or even in the center ditch with traffic running. What's more, it's ruggedly built to take the punishment expected on railway jobs.

For road-bed work, bridge construction, grade-crossing and signal maintenance—plus a host of other railroad jobs—the Spot-Air is a section gang's best friend! To get the whole story, send for your copy of bulletin 2264-B.

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AIR POWER AND AIR TOOLS FOR LOW COST MAINTENANCE OF WAY

When a salesman calls it costs you

Time spent with a railroad supply salesman takes, on the average, ten dollars worth of your time.*

Is it worth it?

It is when:

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Your F-M Railroad Specialist brings not only his own personal knowledge and experience, but is backed by

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—The world's largest diesel design staff . . . creators of the engine in the most powerful locomotive on the rails—the F-M Train Master.

—More than 75 years' experience in the manufacture of rail cars and other specialized rail and signal maintenance equipment.

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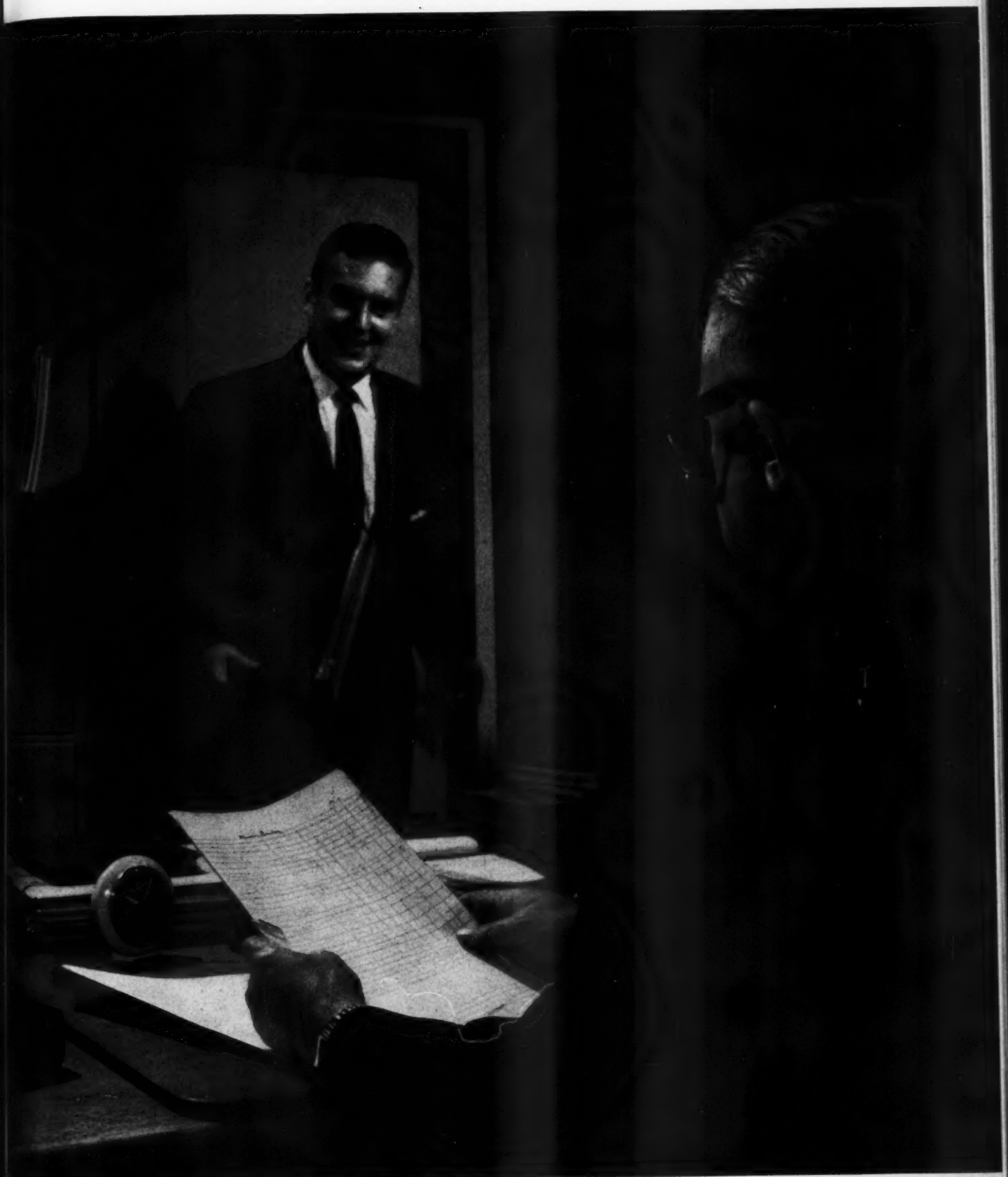
You'll Get Your Money's Worth from your F-M Railroad Specialist

FAIRBANKS-MORSE

a name worth remembering when you want the best

you ***$10.00 . . . is it worth it?***



HOMELITE

5-20 CHAIN SAW

It's NEW... It's alive with power

5 HP—20 POUNDS

Never before has there been a chain saw with so much power per pound as the new Homelite Model 5-20. It has 5 big horsepower for faster cutting . . . a light, light 20 pounds for easy operation. What's more, it is the only chain saw that gives you a choice of attachments to do many different cutting chores easier.

The new Homelite Model 5-20 is precision built for quick starting, dependable performance, and low, low maintenance. Cuts in any position . . . it saves both time and money . . . brings bigger profits to woodcutting or clearing operations. Write for complete details or see your Homelite dealer.

See your dealer for details on the Homelite TIME PAYMENT PLAN

Packed with power, the new Homelite Model 5-20 Chain Saw brings down big trees six feet in diameter, cuts through 20" trees in 20 seconds without forcing or jamming. Anyone can operate it . . . no experience necessary.

DO MORE WITH THESE 5-20 ATTACHMENTS

Interchangeable Blades add versatility to the new Homelite 5-20 Chain Saw. For felling, bucking, limbing or plunge cutting, there's a hard track blade for every requirement. Straight blades available from 14" to 60", bow saws 14" and 18".

Brush Cutter cleans out brambles, brush, undergrowth and small saplings six times faster than conventional methods. The adjustable harness, hanger and handle bars assure perfect balance . . . make it extremely simple to operate . . . safe for anyone.

Clearing Attachment makes quick work of clearing land of small trees. Plunge cuts or plunge bucks . . . no bending or stooping . . . less fatigue. One man keeps three men busy carrying away limbs and piling brush!

HOMELITE

212 RIVERDALE AVENUE • PORT CHESTER, NEW YORK

A DIVISION OF TEXTRON AMERICAN INC.

Manufacturers of Carryable Chain Saws • Pumps Generators • Blowers

the NEW NORDBERG *Automatic* GANG TAMPER

Here are some of the reasons why this tamper is the most talked-about machine today:

The Nordberg Automatic Gang Tamper delivers high production quality tamping in raising and spot surfacing. Ballast under every tie gets exactly the same tamping. One man operates the machine with two push-buttons. One of these starts the tamping cycle . . . and *automatically* the tamping heads are dropped, impacted, vibrated, lifted—a pre-set number of times—and the machine *automatically* moves forward. The operator then stops the machine over the next tie by merely touching the second push-button. Tamping is again resumed. The completely automatic tamping cycles can be easily varied to meet specific ballast conditions. Change from automatic to manual operation can be made instantly, at any time.

Here, then, is your assurance of uniform quality tamping of every tie, every time, in any ballast, whether raising or spot surfacing. Write for descriptive brochure.

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R655-R

NORDBERG *"Mechanical Muscles"®*

ADZING MACHINE • BALLAST ROUTER • CRIBEX® • BALLASTEX® • SCREENEX® • HYDRAULIC and MECHANICAL SPIKE PULLERS • SPIKE HAMMER • TIE DRILL • POWER JACK • POWER WRENCH • RAIL DRILL • RAIL GRINDERS • TRACK SHIFTER • DSL® YARD CLEANER • TRAKLINER • GANG TAMPER • DUN-RITE GAGING MACHINE • GANDY—TIE PULLER and INSERTER

NORDBERG MFG. CO., *Milwaukee, Wis.*

NORDBERG MACHINERY

International distributor delivers...

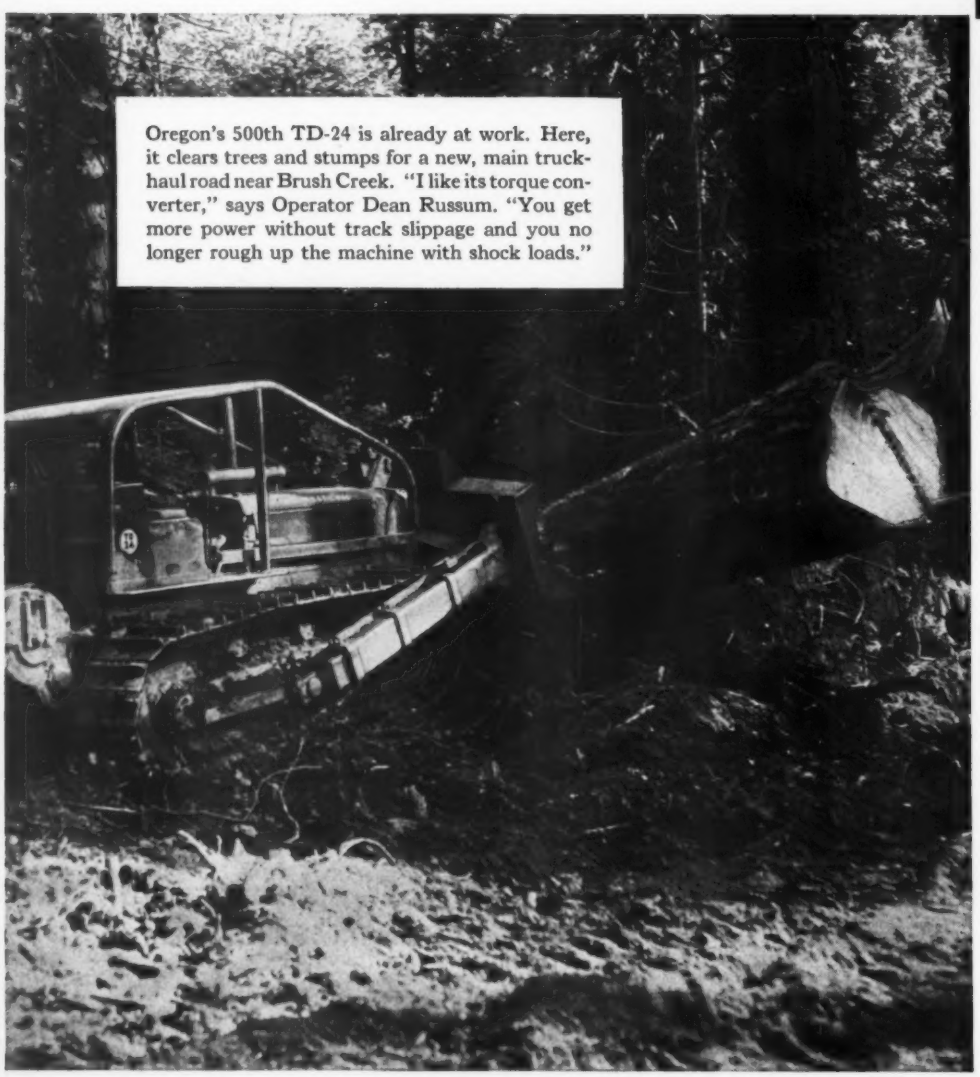
500 TD-24's

For pioneering and road building in the rugged northwest

Howard-Cooper Corporation, one of International's 31 Western area distributors, have just delivered their *500th TD-24!*

You see this big 200 bhp crawler already at work for Wooley Logging Company, Drain, Oregon.

In rough, tough, Pacific Coast, big-scale logging, mining, and earthmoving, profitable production depends upon positive load-control, up-grade or down. *The TD-24 is the only tractor built that has planet-power steering—which gives you constant load control on both tracks when turning.* That's why the TD-24 out-produces the others so decisively, with dozer, arch, or scraper! Another big TD-24 advantage is its built-for-the-West construction. Records, on fleet after fleet, prove that TD-24's stand up under the toughest conditions—and consistently cost less for maintenance than any other make on tracks! TD-24 high-altitude performance is a big advantage, too—so is its seconds-fast, cold-weather starting and operating ease!

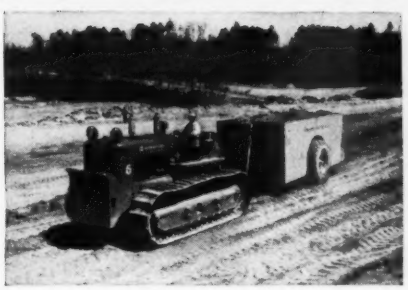


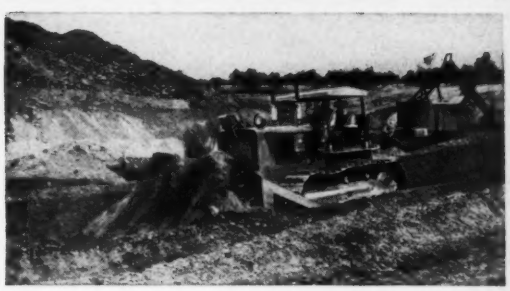
Oregon's 500th TD-24 is already at work. Here, it clears trees and stumps for a new, main truck-haul road near Brush Creek. "I like its torque converter," says Operator Dean Russum. "You get more power without track slippage and you no longer rough up the machine with shock loads."

TD-24's

6 for A. J. Orlando on Massachusetts Turnpike—Most of the tractor work on this Whiteside (N.Y.) contractor's 4.89-mile, 2,500,000-yard, $3,340,000 section of the Massachusetts Turnpike is being done by TD-24's. One pushing 3 scrapers accounts for 4,500 pay yards every 10 hours (scrapers on 1,500-ft. one-way hauls). Others pull rippers, level fills, etc.

If you're in the market for a big tractor, you owe it to yourself to check the leader . . . the International TD-24. Five-hundred owners in just one area have proved it their "Best Buy." If it can so successfully and so profitably lick the tough rock, cold weather, and mountain grades of Oregon, it can successfully and profitably lick your high-cost jobs, too! Let us prove its advantages with a demonstration. Call to arrange time and place.





PAY OFF ACROSS THE COUNTRY

6 for J. D. Armstrong on Kansas Turnpike—Of their 9 TD-24's, this Ames (Iowa) contractor reports all have run 5,000 hours or more before needing any repair work. Six on 1.7-mile, million-yard Turnpike section near Emporia, are towing 50-ton rollers, pulling and push-loading scrapers. On hauls of 700 to 2500 ft., they account for 5,000 pay yds. per day.

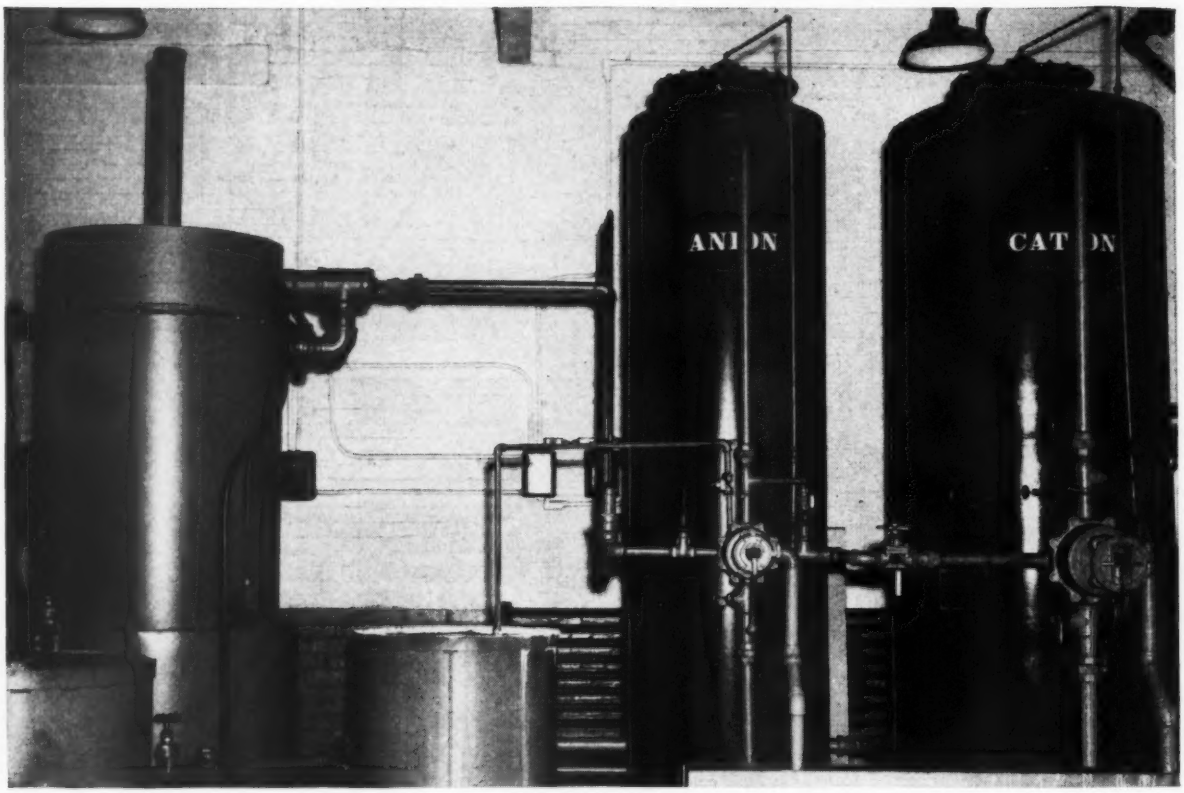
2 for J. W. Moorman on Buford Dam, Georgia—These "24's", two of the five now owned by Moorman, push-loaded scrapers or pulled 50-ton rubber-tired rollers, 18 hours every day for 18 months. On compaction, they averaged 180,000 cubic yards weekly for the 200-ft.-high, 1630-ft.-long main dam. Moorman's other TD-24's are used to push-load scrapers, and pull or push belt loaders.

3 stripping overburden for Meyer Bros., Pennsylvania—"Proven crawlers," says Partner George Meyer of his TD-24's. "We've used our 3 for 3 years now. They have good balance plus unmatched push power." Right now, rigs are removing 30 feet of shale and clay to uncover a 30-inch vein of bituminous coal. The 2 TD-24's do 80% of the job; a large shovel, 20%.

International Industrial Power

INTERNATIONAL HARVESTER

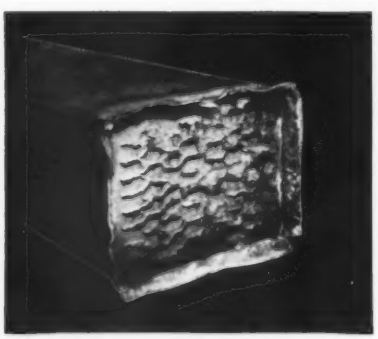
A machine size for every job . . . see your nearest INTERNATIONAL DISTRIBUTOR for details.



Dearborn furnishes a complete line of De-Ionizing or Zeolite plants for railroad application.

Dearborn's Water Treatment Systems are Working on the Railroads

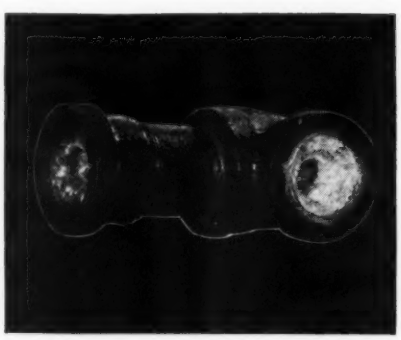
Over 163 Dearborn De-Ionizing and Zeolite plants are now serving railroads satisfactorily. The demand for these facilities is increasing steadily. We'd like to explain the many advantages of Dearborn Water Treatment Systems. Dearborn Chemical Company (Railroad Division), Merchandise Mart Plaza, Chicago 54, Ill.



Water conditioning treatments. Specific treatments are required for diesel cooling water, diesel steam generators and package-type boilers. Dearborn has led the field in supplying these treatments for years.

Return line corrosion. Another modern Dearborn water treatment improvement is FILMEEN* which prevents condensate return line corrosion.

*U.S. Pat. No. RE23614



ERIE

ERIE was one of the first railroads to use De-Ionized water.

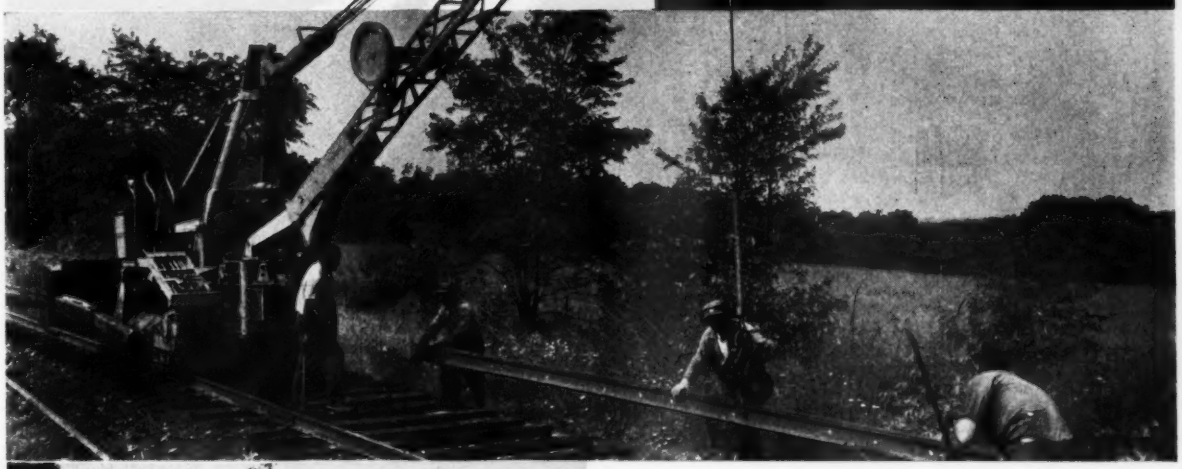
Dearborn®

A leader in water treatment since 1887

On the Erie R. R. . .

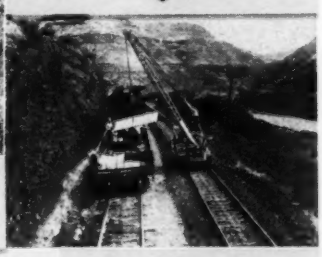
HYSTAWAY®
EXCAVATOR—CRANE

Does four days work in one day



DRAINAGE WORK

HANDLING CONSTRUCTION MATERIAL



RIGHT OF WAY MAINTENANCE

BRIDGE WORK

Laying thirty-two 112 pound, 39-foot rail in one hour was easily accomplished by a Hystaway Excavator-Crane mounted on a Caterpillar-Diesel Tractor. As a result, work was done in **one day,** which would have required four days, if hand labor alone had been used.

The Hystaway Excavator-Crane works on or off the tracks, makes right-of-way maintenance a one-machine operation. Unloading and loading rail, laying rail, grading, filling, ditching, handling ballast material are typical of jobs on which Hystaway Excavator-Cranes are reducing costs for Erie Railroad Company.

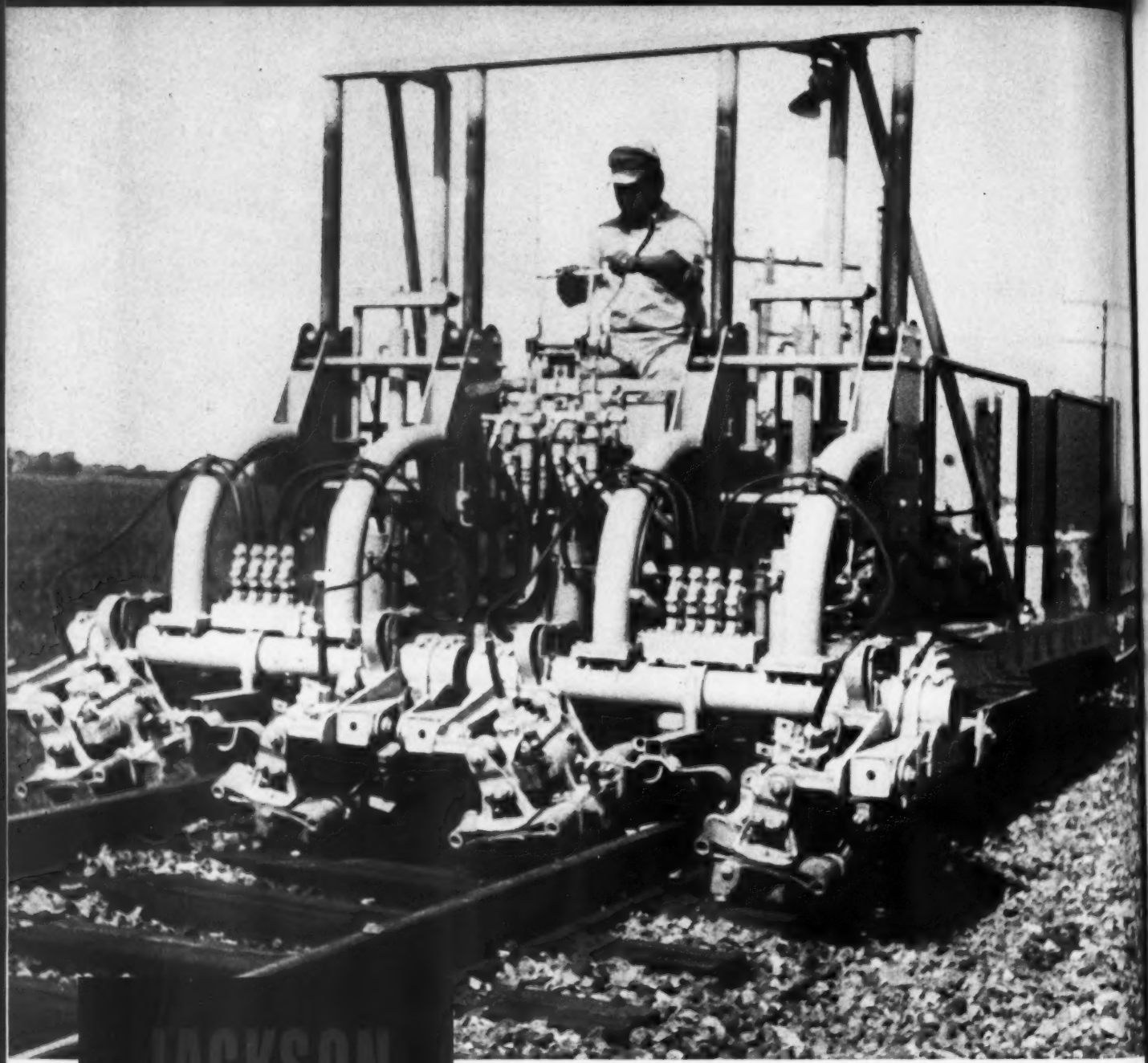
Call your Caterpillar-Hyster Dealer for details, or write to: HYSTER® COMPANY, 2902-56 N.E. Clackamas Street, Portland 8, Oregon, or 1802-56 N. Adams Street, Peoria 1, Illinois.

HYSTER COMPANY

"Matched Design" Tractor Tools for Caterpillar-built Tractors

HYSTER

Now-more than ever-your best bet for '56



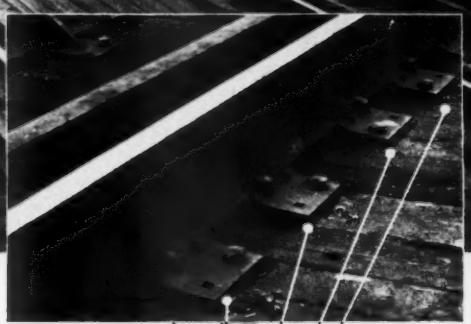
JACKSON TRACK MAINTAINER

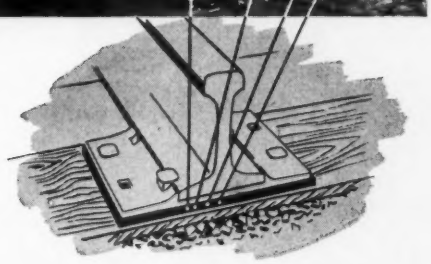
The 1956 model, now in production, combines major improvements to provide even greater speed and efficiency of tamping under all conditions . . . improvements such as: Much greater power . . . a highly practical means of directing every bit of vibration to the ballast . . . and other important features . . . all of which increases the already wide margin of superiority of this machine as the best means of both putting up and maintaining track of finest quality. By all means write, wire or phone for complete information concerning the JACKSON TRACK MAINTAINER. You're sure to agree, we believe, that it is by long odds your best bet for '56.

Acquirement plans to suit your needs.

JACKSON VIBRATORS, INC.
LUDINGTON, MICHIGAN

You can't afford tie failure in bottleneck areas...





Cushion track structures with J-M Tie Pads... prevent cutting and abrasion

TIE REPLACEMENT IS SO COSTLY and troublesome... particularly in critical areas... every track program should provide for Johns-Manville Tie Pads.

J-M Pads absorb impact shock, help isolate the transmission of noise and vibration. They serve as durable protective cushions, seal out dirt and moisture, prevent abrasion and cutting.

Formulated for low compressibility, high recovery and low plastic flow, J-M Tie Pads offer good resiliency and flexibility over the widest temperature ranges encountered in service. They are resistant to creosote, diesel and lubricating oils, brine, water and freezing and thawing.

Available in all standard sizes, J-M Tie Pads are furnished plain, or with a special coating on one side. For detailed information on Tie Pads or other Johns-Manville products, get in touch with your J-M Representative, or write Johns-Manville, Box 60, New York 16, N. Y.

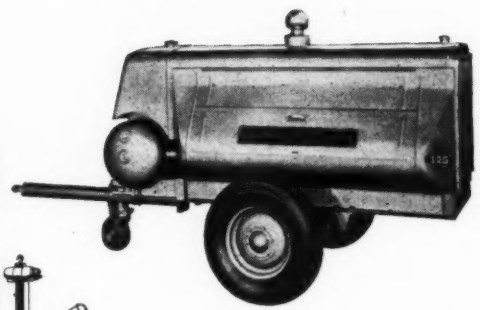
JOHNS-MANVILLE JM PRODUCTS

Johns-Manville 97 YEARS OF SERVICE TO TRANSPORTATION

Gardner-Denver Maintenance Tools make plant housekeeping easier

Good industrial maintenance often calls for concrete demolition, masonry drilling, heavy lifting, tough digging, firm backfilling — jobs done quickly and easily by the crew that's equipped with these costsaving Gardner-Denver Air Tools —

Write for descriptive bulletin.



The Gardner-Denver WH-125 — puts compressed air where you need it for operating these tools — for cleaning — for paint spraying.

GARDNER-DENVER

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS FOR CONSTRUCTION, MINING, PETROLEUM AND GENERAL INDUSTRY

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Avenue, Toronto 16, Ontario

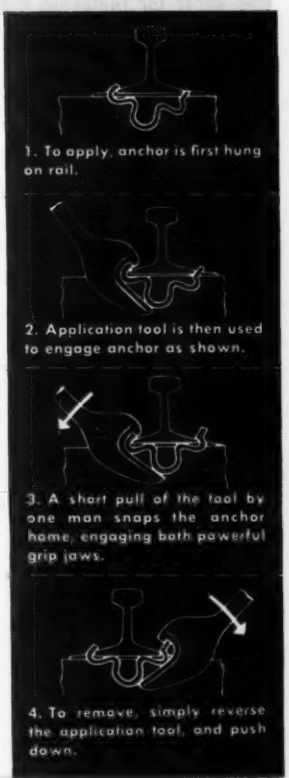
Preferred everywhere . . . because it is the World's MOST POWERFUL ANCHOR

WOODINGS
Advanced Type RAIL ANCHOR

You will find real opportunities for savings in the advanced type WOODINGS RAIL ANCHOR. It is easy to apply, grips with unsurpassed strength and can be removed and reapplied many times!

Send for new bulletin giving details about this anchor, which has received wide acclaim on America's leading railroads.

Unexcelled for use on welded rail



1. To apply, anchor is first hung on rail.

2. Application tool is then used to engage anchor as shown.

3. A short pull of the tool by one man snaps the anchor home, engaging both powerful grip jaws.

4. To remove, simply reverse the application tool, and push down.

WOODINGS FORGE & TOOL CO.

Main Office and Plant: VERONA, PA.
Sales Offices: CHICAGO, ST. LOUIS

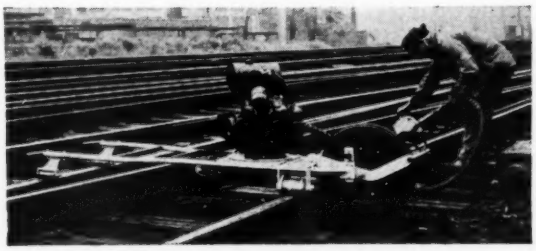
Used by the ERIE

RTW GRINDERS and DRILLS

They Service More Track, in Less Time, for Less Money

On the Erie, and other famous lines, RTW Grinders and Drills speed up maintenance—and help keep rails in apple-pie order without crowding track gangs. The Erie has learned the economies of using the three RTW machines shown here plus other of our maintenance machines.

MODEL P-44 PORTABLE FLEXIBLE SHAFT GRINDER, designed to give added savings in labor and costs when laying new track or repairing old.
Grinder's 360° swivel engine mount prevents short bends and kinking of flexible shaft . . . clutch assembly in the engine protects shaft from overload . . . three position wheel clears switches and crossovers easily . . . quickly adaptable for auxiliary equipment: Straight Hand Wheel Piece, Angle Hand Piece for Cup Wheel, Cross Grinder Guides and Track Drill.



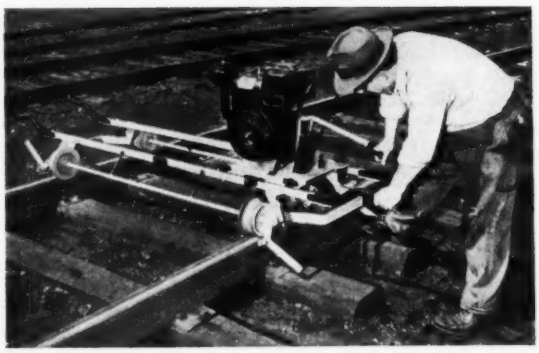
MODEL P-44

MODEL P-11-S PORTABLE CROSS GRINDER, a real time saver for removing overflow metal at rail ends as well as cross grinding behind welding crews.

Grinding wheel spindle and gasoline engine pivot 360°—you work both the rails with only one grinding head. Equipment mounted on transverse carriage which operates on ball bearings running on steel guides.

Pivoted foot clamping device with automatic release holds grinder firmly against rails during slotting.

Hinged and coil-spring-mounted handle for feeding 8" grinding wheel permits easy operation, any depth of cut.

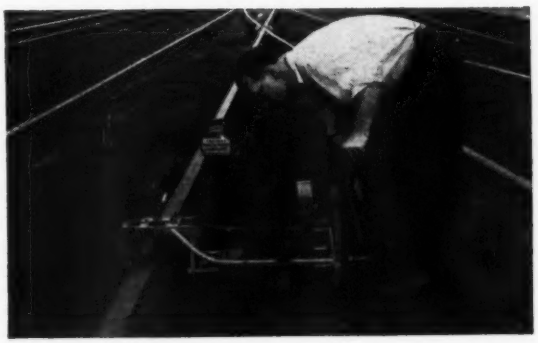


MODEL P-11-S

MODEL P-43 POWER TRACK DRILL gives you 60-second drilling—quick, accurate drill-levelling—easy-acting, easily-controlled screw feed—easy-handling (aluminum castings keep weight down to 125-lbs.) . . . chuck jaws that take beaded tips up to 1½" and automatically stay open when chuck is loosened.

Telescopic extension on rail head bracket for drilling at heel of switch. Levelling device gives perfect alignment for drilling holes through angle bars and bare rails.

Investigate these and other cost-saving RTW track maintenance machines — write for literature.



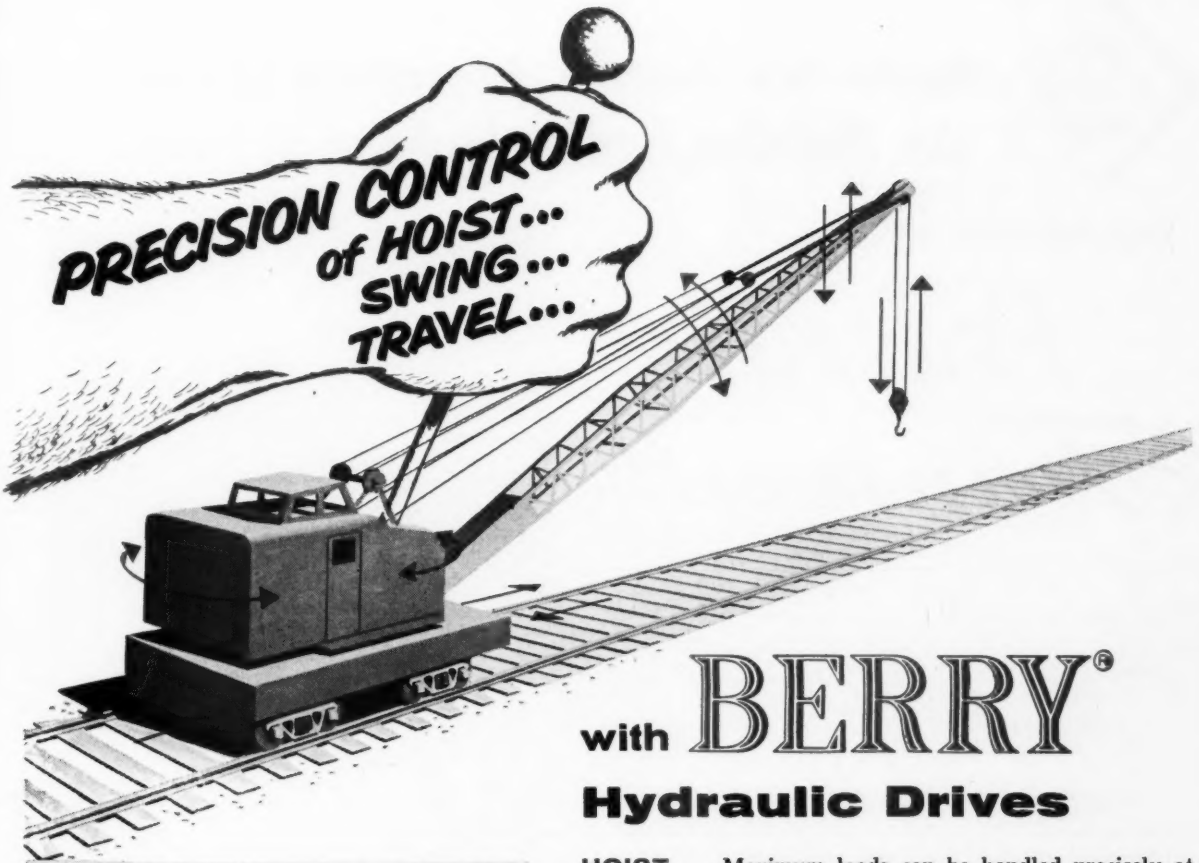
MODEL P-43

Railway Track-work Co.

3207 KENSINGTON AVE., PHILADELPHIA 34, PA.

Specialists in Track Maintenance Equipment.

Rail Grinders • Switch Grinders • Cross Grinders • Surface Grinders • Rail Drills
Ballast Extruders • Bit Sharpeners • Tie Nippers • Grinding Wheels • Cut-off Wheels • Track Liners



with BERRY®

Hydraulic Drives

HOIST . . . Maximum loads can be handled precisely at minimum cost by using low *or* high engine speeds.

SWING . . . Direction is completely independent of main transmission direction.

TRAVEL . . . Tractive effort and speed are ample for all demands.

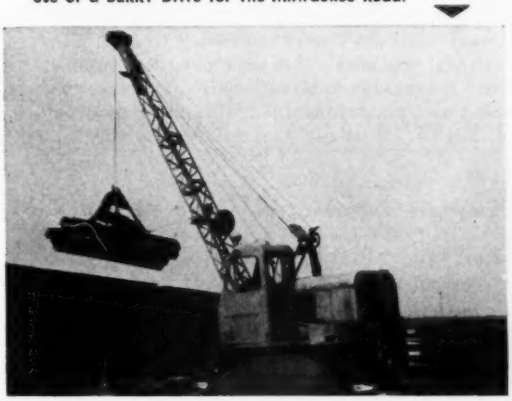
REVERSIBILITY . . . Complete reversibility is possible at any speed or load, using main control. (No reverse gear to require maintenance.)

SPEED . . . Speed of operation is independent of load within engine horsepower limits.

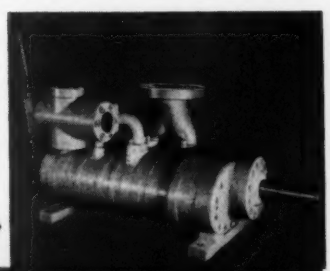
Simplicity . . . Utilization of the new BERRY Pump and Motor Control Valves eliminates over 65% of the piping normally required in conversions and provides the maximum of Precision Control.

17½-Ton Brownhoist with Boom, Hoist and Travel supplied by a BERRY Drive for Western Maryland Railway Company.

10-Ton Unit Crane provided with Independent Swing by use of a BERRY Drive for The Milwaukee Road.



Experience . . . Major industrial firms and railroads in the United States and Canada are using cranes converted to BERRY Hydraulic Drives. Write for location nearest you.



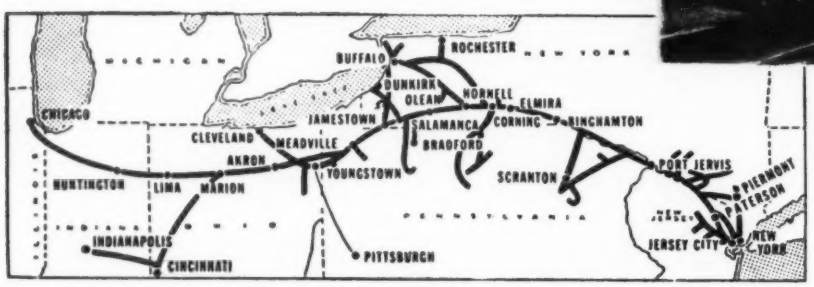
BERRY Model 32-10 3-place pump with BERRY Selector Valve mounted.

BERRY DIVISION
OLIVER IRON & STEEL CORPORATION

Reaches New Standards of Operational Efficiency with *Mainline Radiotelephone System...*

ENGINEERED BY—

Federal-Farnsworth



★ The Erie System comprises 2,242 miles of railroad between New York and Chicago. Erie's radio facilities play a major role in the swift movement of passengers and freight through this vital area . . . the industrial heart of America . . . !

New mainline diesels now being equipped by Federal-Farnsworth ... new radio facilities now being installed in additional key yards and terminals...

Federal-Farnsworth

RADIOTELEPHONE COMMUNICATION SYSTEMS — DESIGNED EXCLUSIVELY FOR COMPLETE RAILROAD SERVICE:

- Bring highest operating efficiency to mainlines.
- Speed traffic to and from yards and terminals.
- Increase availability of cars and locomotives.
- Safeguard rolling stock; reduce operating costs.
- Provide greater safety for passengers and crews.
- Systems engineered for dependable, 24-hour use.
- Vertical or horizontal shock-mounted housings.
- Plug-in, interchangeable fixed and mobile units.
- Systems fully meet FCC and AAR requirements.
- Performance-Proved on major railroads of U. S.

ERIE's complete mainline radiotelephone system between New York and Chicago is the *first* on any American railroad . . . constant communication linking cab and caboose, moving trains, dispatchers, wayside stations, or a combination of all together.

To the mainline radiotelephone system, the Erie is now adding the latest Federal-Farnsworth equipment in its new mainline diesel locomotives. Additional radio facilities are now being installed at key yards and terminals . . . to provide Erie crews with clear, split-second, all-weather communications.

Federal-Farnsworth is proud of this continuing opportunity to work with the Erie in improving its high standard of operational efficiency. This same complete engineering experience is available to all railroads . . . to serve them in developing modern, dependable radio systems of any scope.

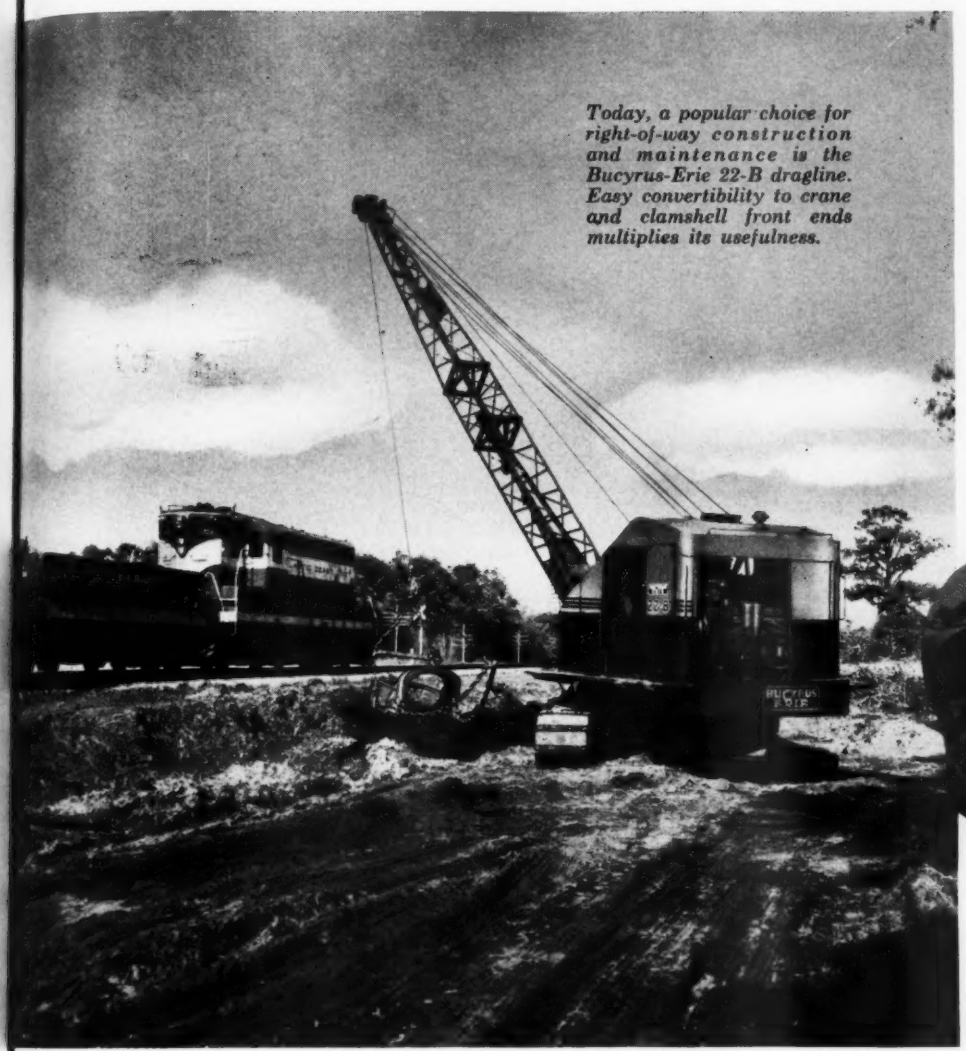
For complete information write to Dept. P-686

Federal

A DIVISION OF IT&T

Federal Telephone and Radio Company
A Division of INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION
RAILROAD DIVISION • 100 KINGSLAND ROAD • CLIFTON, N. J.
Chicago Office: 79 West Monroe Street • St. Louis Office: 532 Arcade Building

75 YEARS OF BUCYRUS-ERIE LEADERSHIP . . .



Today, a popular choice for right-of-way construction and maintenance is the Bucyrus-Erie 22-B dragline. Easy convertibility to crane and clamshell front ends multiplies its usefulness.

December 18 marks Bucyrus-Erie's 75th Anniversary. In the years since 1880, the company has been proud to bring many significant advancements to the design of excavators and cranes . . . the first electric, the first diesel and the first diesel-electric excavators . . . the first crawler-mounted railroad shovel . . . the first diesel-electric railway crane with Ward Leonard control . . . and too many more "firsts" to detail here. Most important, however, the know-how back of these is yours in whatever Bucyrus-Erie machine you use.

President Theodore Roosevelt Visits Panama Canal: *This Bucyrus-Erie shovel, one of 77 used on the Big Ditch, was included in his 1908 inspection tour.*

. . . GIVES YOU TOP PERFORMANCE TODAY . . .

You can expect top performance from a Bucyrus-Erie machine because it's *built right in.* It starts with the design — Bucyrus-Erie designs are backed by the experience gained from thousands of machine-years of service. Bucyrus-Erie machines are *right* in every respect.

Parts are properly proportioned, operating functions are effectively balanced. This results in fast working ability, with maximum time on the job and long service life. The extras Bucyrus-Erie puts into the design and construction of excavators and cranes pay off many times over in added output and lower cost operation.

. . . PROMISES EVEN BETTER EXCAVATORS AND CRANES TOMORROW

You can expect even higher performance standards from Bucyrus-Erie machines in years to come. The development of new and improved designs, and the search for better materials and more efficient manufacturing methods never ends. With facilities unsurpassed in the industry, Bucyrus-Erie promises you excavators and cranes that will serve you better than ever.

37Y55C

BUCYRUS-ERIE COMPANY South Milwaukee, Wis.

75 Years of Service

to Men Who Shape the Earth

1880 • 1955

More and more "RIBBONRAIL" SERVICE

year after year BECAUSE...

1 *Faster, higher quality production is continuing to reduce weld costs in spite of rising labor and material costs.*

2 *From weld making to rail laying, modern engineers have developed continuous rail laying into a swift, efficient operation.*

During the 18 year history of continuous rail, installation time and welding costs have constantly decreased . . . Hundreds of miles of this safe, trouble-free rail are already in service in all sections of the country, and major railroads are installing more all the time.

Reduce your track, roadway, and rolling stock maintenance, and improve riding qualities. Look to LINDE, the leader in continuous rail welding, and plan for RIBBONRAIL Service now. Call or write the Railroad Department of Linde Air Products Company.

look to **LINDE** *for* **RIBBONRAIL** *service*
Service Mark

RAILROAD DEPARTMENT

Linde Air Products Company

A Division of Union Carbide and Carbon Corporation

30 East 42nd Street UCC New York 17, N. Y.

Offices in Other Principal Cities

In Canada: LINDE AIR PRODUCTS COMPANY
Division of Union Carbide Canada Limited, Toronto

Supplying to railroads the complete line of welding and cutting materials and modern methods furnished for over forty years under this familiar symbol . . .

"Linde" and "Oxweld" are trade-marks, and "Ribbonrail" is a service mark of Union Carbide and Carbon Corporation.

Kill Rust

with the NEW

Permite

RUST-BLOK

Permite Rust-Blok is a big money-saver because it is a positive rust inhibitive primer and a top grade Bakelite aluminum finish combined in one coating. Makes spot priming of rusted metal unnecessary. Absolutely prevents rust from growing and spreading under the paint film.

Pigmented with "Celestite SR", proven to be today's best rust inhibitor, Permite Rust-Blok stops rust in its tracks. And, you get a whiter, better-looking finish, free from laps or brush marks.

You can expect twice the years of service, with a Permite Rust-Blok one-coat job. It's a real money-saver!

FREE! Test Panel Reports contained in this new bulletin prove the extra effectiveness of Permite Rust-Blok. Write for free copy and name of your Permite Distributor.

ALUMINUM INDUSTRIES, INC.
CINCINNATI 11, OHIO
Permite Paint Division

permite Aluminum Paints

RAILWAY

TRACK and STRUCTURES

Subject:

Dear Readers:

Human Relations and the Foreman

During almost any given period in history it seems that a subtle current of thought is flowing through the minds of large numbers of people, resulting in a sort of "ground swell" of thinking along a particular line. It is this phenomenon, for example, that causes great revivals in religious faith to sweep the world from time to time.

It is not difficult for an interested observer to recognize the existence of one of these trends of thought. He can do this simply by listening to what people talk about and by looking for clues in articles published in newspapers and magazines; what appears in print is merely a reflection of what people want to read. The signs at the present time point unmistakably to the fact that people in general are becoming increasingly interested in the struggle of the individual for recognition. One of these signs is the greater emphasis being placed on the "human element" in business and industry. Or, to put it another way, there is a growing awareness of the need for better "personnel relations." The term "human engineering" has been used to describe the techniques by means of which these better relations can be achieved.

All of this has come about because of the deep-seated urge, present in every individual, to be regarded highly by his fellows. Psychologists say that the desire to be recognized as important is one of the most powerful instincts in human nature. If this is true, we might ask why it is at this particular point in history that the subject is receiving so much attention? Doubtless much of the answer lies in the fact that there is now general recognition of a truth that formerly remained largely unnoticed in the minds of psychologists or between the covers of books read only in the class room—and then forgotten.

Apparently this growing concern with the human element has found fertile soil for growth in the railroad field. This is an age of technological progress, but the articles that provoke the greatest interest among readers are those that deal with problems in personal relations.

This interest is evidence of a new relationship between superior and subordinate. There was a time when the function of the supervisor was to receive orders from above and transmit them to the man below, with no questions asked on either side. It is now more generally recognized that people work better if somebody takes the time to tell them something of the whys and wherefores of the work they do, and also that getting a man to do his best is a science based on the need for recognition.

One effect of this development has been to give new stature to the position of foreman. This is so because he is in direct contact with the men who do the work. He is management's representative on the ground, and, as such, he must have an understanding of the fundamentals of good human relations and must practice them constantly on the job.

There is evidence that foremen are becoming increasingly aware of the change that has taken place in their status. What it all means is that the foreman is emerging as a figure of growing importance in the railroad field. He should be given encouragement and support in realizing the full potentialities of his new position.

MHD

THE RACOR STUD

(Patented)

deserves your consideration because...

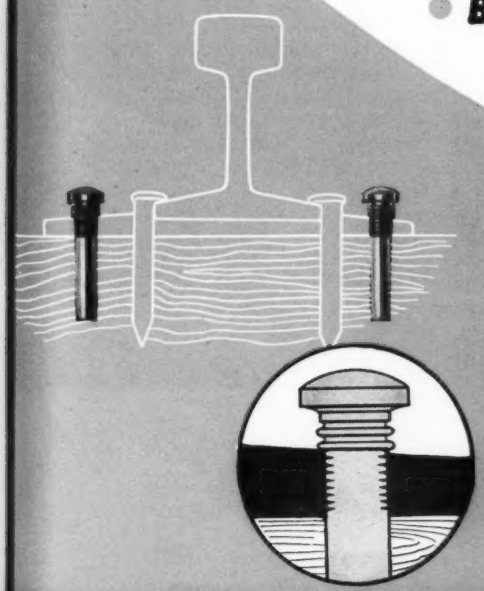
IT EXTENDS TIE LIFE

- BY REDUCING TIE ABRASION
- BY REDUCING SPIKE KILLED TIES
- BY REDUCING SPLIT TIES

RACOR
TRADE MARK

IT PROVIDES STURDIER TRACK

- BY MAINTAINING BETTER LINE AND GAGE
- BY DEFERRING TIE REPLACEMENT
- BY REDUCING LABOR COSTS



The RACOR STUD securely driven becomes integral with the tie plate and restricts lateral movement most effectively.

Conclusive tests show a reduction of over 50% in tie wear by the use of the RACOR STUDS.

Low in cost, the RACOR STUD will show a high return through material and labor savings with sturdier, smoother and safer track.

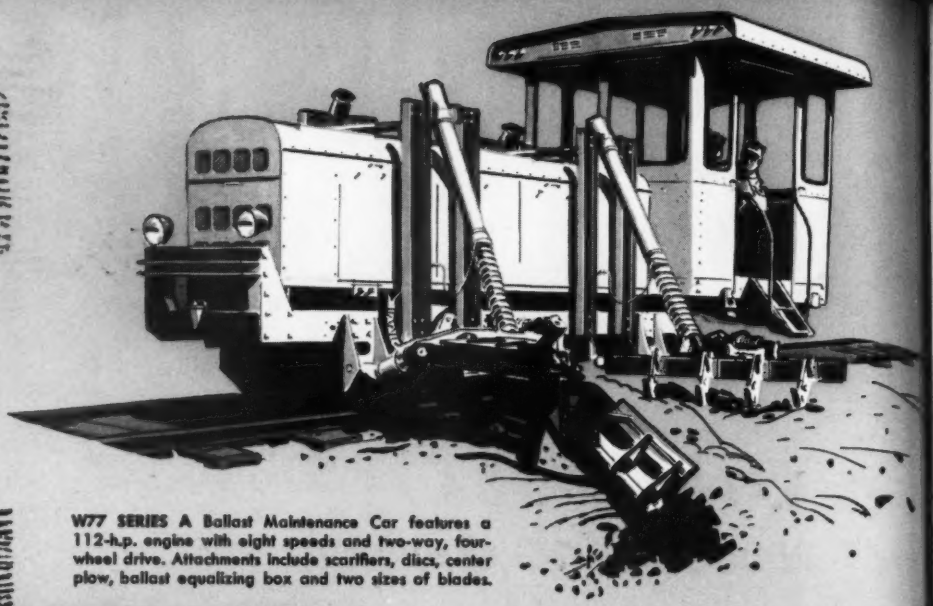
Write for prices and complete descriptive literature.

AMERICAN Brake Shoe COMPANY

RAMAPO AJAX DIVISION
AMERICAN BRAKE SHOE COMPANY
155 North Wacker Drive, Chicago 6, Ill.

Sales Offices:
New York, N. Y.; Buffalo, N. Y.; Cleveland, Ohio; St. Louis, Mo.; Houston, Texas; Denver, Colo.; San Francisco, Cal.; Niagara Falls, Ont., Canada.

Plants:
Chicago Heights, Ill.; E. St. Louis, Ill.; Buffalo, N. Y.; Superior, Wis.; Pueblo, Colo.; Los Angeles,



W77 SERIES A Ballast Maintenance Car features a 112-h.p. engine with eight speeds and two-way, four-wheel drive. Attachments include scarifiers, discs, center plow, ballast equalizing box and two sizes of blades.

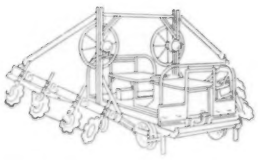
When you think of

BALLAST MAINTENANCE

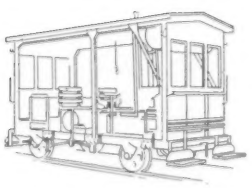
. . . think of

Fairmont

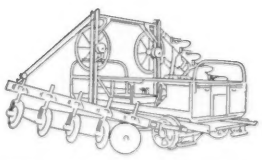
Fairmont's reputation in the field of railway maintenance is the product of several factors. It grows, first of all, from the unquestioned quality of all Fairmont units. Then, too, it comes from Fairmont's traditionally fine design and engineering. But perhaps even more importantly, it results from Fairmont's ability to provide *exactly* the right piece of equipment for every job. As evidence of this point, we offer the four Fairmont products pictured here. The giant W77 Series A, for instance, is ideal for large jobs where speed and efficiency are required. The M25 Series D combines low cost with unusual thoroughness of work. The M23 Series E does an excellent job for limited operations. And the W62 Series C is among the most economical units of its kind. If you are interested in further information on any of these products, we will be most happy to accommodate you. You will discover, we feel certain, that when you think of ballast maintenance—you should think *first* of Fairmont!



M25 SERIES D Ballast Discer features a heavy-duty truck type transmission and four-speed, two-way operation. Discing equipment can be detached, thus freeing the unit for gang service.



M23 SERIES E Ballast Drainage Power Unit features a 75-h.p., 6-cylinder engine with four-speed, two-way operation. Unusually thorough, economical and dependable. Minimum crew required.



W62 SERIES C Ballast Discer is a self-propelled unit that improves track drainage, reshapes shoulders and aids in reballasting and tie renewal programs. Five 18" discs, full-depth operation

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RAILWAY

TRACK *and* STRUCTURES

DECEMBER, 1955 **Vol. 51, No. 12**

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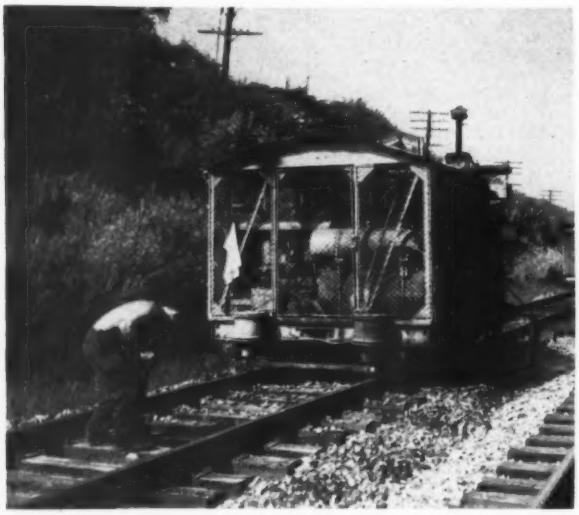
R. E. DOVE, Associate Editor
HALBERT H. HALL, Associate Editor
R. J. McDIARMID, Associate Editor
FRED W. SMITH, Business Manager

Pullman-Standard Track Equipment Serves the Efficient Erie

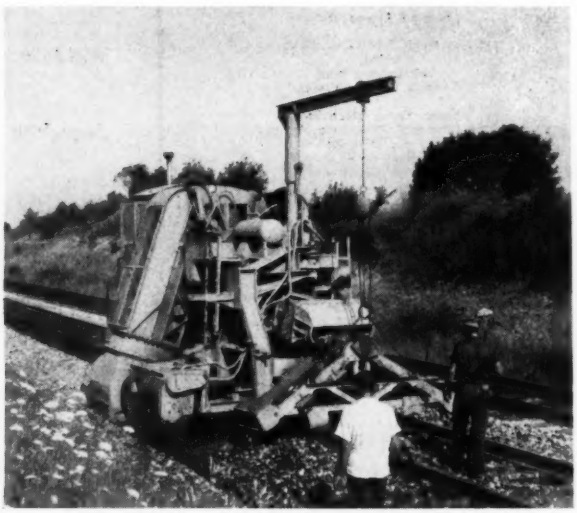
Erie's heavy-duty right of way is kept in top condition by these Pullman-Standard Power Ballasters working in tandem. The production rate is 500-700 feet an hour.

The enviable maintenance of way record of the progressive Erie Railroad is also gratifying to Pullman-Standard. Power Ballasters, Power Cribbers and Power Ballast Cleaners, made by Pullman-Standard, are used by the Erie to keep its right of way in peak condition at minimum cost per track foot.

Pullman-Standard track equipment is serving many of the best maintained railroads throughout the Great American Railway System. Get full information on how the Power Ballaster, Power Cribber and Power Cleaner can serve your railroad. Pullman-Standard's Chicago headquarters will answer your inquiry promptly.



Two cribs a minute, with a single operator, can be made by the P-S Power Cribber. Rate: 100 to 225 track-feet per hour, regardless of cementation.



This P-S Power Ballast Cleaner serves the Erie by efficiently and quickly cleaning ballast to a depth of eight to ten inches below the tie base.

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RAILWAY
TRACK and STRUCTURES

Erie Report...

Panoramic View of M/W Policy

This issue represents a new venture in reader service by *Railway Track and Structures.* The entire feature section is devoted to an analysis of the engineering and maintenance-of-way practices of a single railroad—the Erie. The decision to publish an issue of this type was made in the firm conviction that readers on all roads will find much of unusual interest and value in the material presented. It is the intention to publish similar studies of other roads from time to time in the future.

The customary practice of this magazine, like most trade publications, is to seek out new or unusual developments on various roads and to present the essential details regarding them in individual articles. This means that each issue normally contains articles giving details of developments on a number of roads. It is recognized, however, that such articles, dealing as they do with specific matters, leave much unsaid regarding such important considerations as the underlying policy, the overall organization and the manner of apportioning funds.

The point can be illustrated by an analogy. Articles dealing with specific developments are like close-up photographs of individual features of a landscape. They are fine for bringing out details of particular facets, but they do not show how the components fit into the overall picture. On the other hand a study such as that made in this issue can be compared to an aerial photograph which shows the terrain as a whole and the relationship of all the important elements to each other.

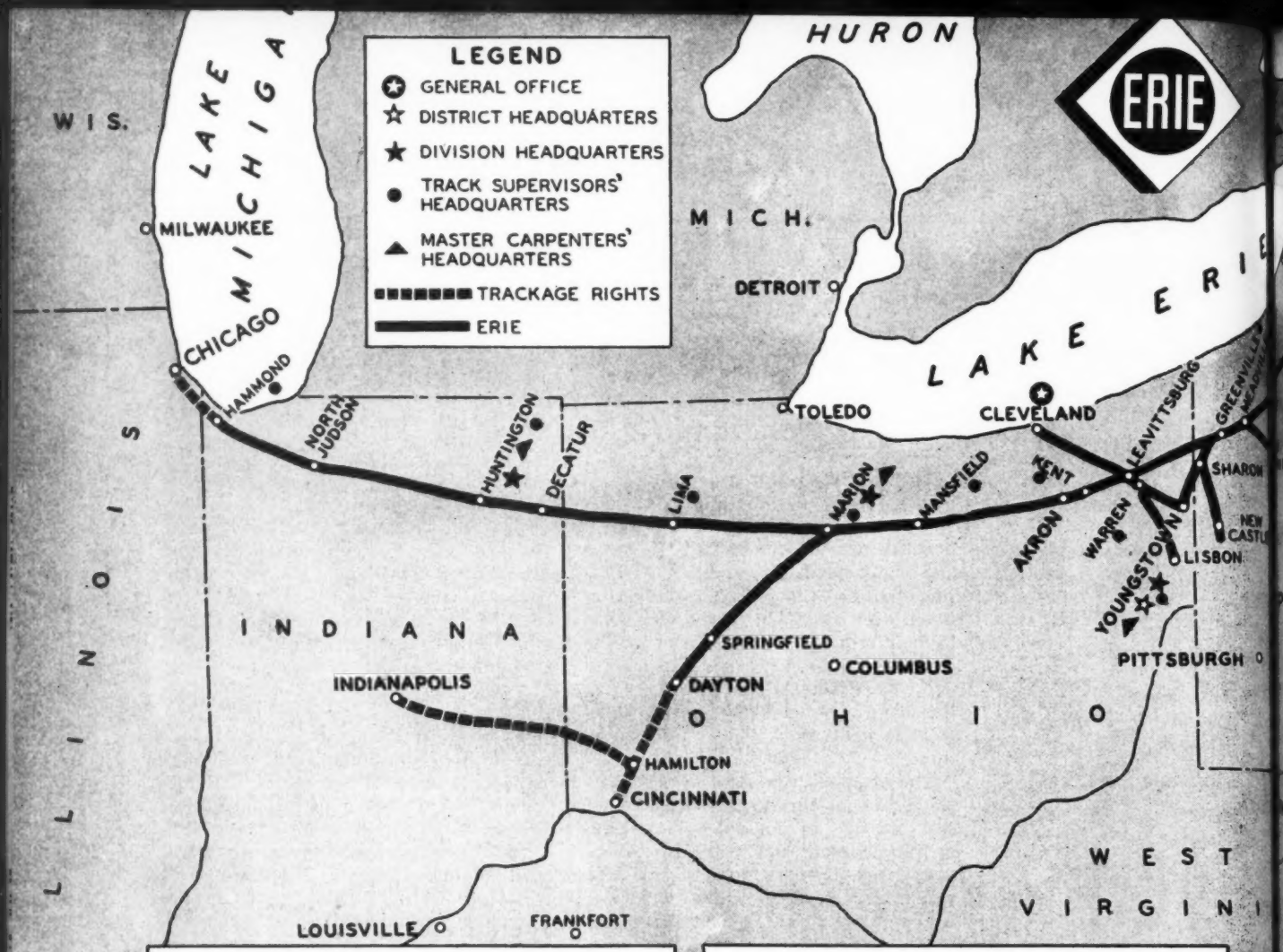
The purpose, then, of a study such as that given in these pages, rather than pin-pointing individual developments, is to provide a panoramic view of an entire engineering and M/W department in action. Readers on other roads are then given an opportunity to make a critical comparison of their own underlying policies with those of the subject road. Conceivably, points of strength may be brought out that may be adopted with profit on other lines.

The fact that the Erie was selected for the first study does not necessarily imply that it is being held up as *the* outstanding example of advanced M/W practices. Few will disagree, however, with the statement that its policies are, in general, sound and progressive. In many respects it is a typical road on which many M/W matters are handled in a manner representative of other lines under similar conditions. On the other hand, in some aspects of its M/W operations, the Erie deviates from what might be called commonly accepted practice.

M/W officers of other roads, who have had an opportunity to observe conditions on the Erie, have frequently referred to its high standards of track construction and maintenance. These standards, it should be noted, have been achieved while maintaining a relatively low M/W ratio. Observers have also noted that Erie M/W officers, while eschewing a hasty approach in evaluating new practices, lose no time in putting into effect improved work methods once they have convinced themselves of their soundness.

In starting the practice of devoting an occasional issue to a single road this magazine is entirely mindful of the fact that conditions peculiar to each line play an important part in dictating its M/W policies. Such matters as the volume and density of traffic, the amount of money allotted for the conduct of maintenance and improvement work, and the attitude of management are all important factors influencing M/W decisions. And they are all beyond the control of engineering and M/W officers.

However, within the limitations imposed by these conditions, top maintenance-of-way officers have a wide area of choice in formulating the practices to be followed in their department. This is a fact to be kept in mind when the practices of a particular road are being discussed or evaluated.



The Erie System . . .

. . . GREAT LAKES TO THE SEA

From New York the Erie stretches like a giant "S" across the mountains of New York and Pennsylvania and the plains of Ohio and Indiana to the heart of the nation's railway network at Chicago. Along the 1,000-mile New York–Chicago main-line route, important branch lines extend the road's service to Buffalo, Niagara Falls and Rochester; and Scranton, Cleveland and Dayton.

The Erie's 2,337-mile system comprises 954 miles of first main line (two or more tracks), 181 miles of first main line (single track), and 1,202 miles of additional main tracks. In addition, the road has 1,772 miles of yard and siding tracks.

The system is divided into two grand divisions—the Eastern district and the Western district—and 14 divisions. These are the Terminal division at Jersey City, which includes property in New York; the New York division, extending from Jersey City to Port Jervis, N. Y.; the Delaware division, from Port Jervis to Susquehanna, Pa.; the Wyoming division, from Lackawaxen, Pa., to the Scranton–Wilkes-Barre area; the Jefferson division, running from Susquehanna, Pa., to the Scranton–Wilkes-Barre area; the Susquehanna division, from Susquehanna to Hornell, N. Y.; the Rochester division, extending from near Corning, N. Y., to Attica, N. Y., and Rochester; the Buffalo division, running from Hornell to Buffalo and Niagara Falls; the Allegheny division, including the Dunkirk branch, from Hornell to Salamanca to Dunkirk; the Meadville division, including the Buffalo & Southwestern branch, from Buffalo to Jamestown, N. Y., to Meadville; the Bradford division from Carrollton, N. Y., to Brockway; the Mahoning division between Meadville and Kent, Ohio, also including the Cleveland line; the Kent division, running from Kent, Ohio, to Marion, and including the line from Marion to Dayton; and the Marion division, which runs from Marion to Hammond, Ind., where the Erie uses the tracks of the Chicago & Western Indiana into Chicago.

For operating purposes these divisions are grouped into eight larger territories, and these coincide with the territories of the division engineers. The headquarters of the division engineers are shown on the map.

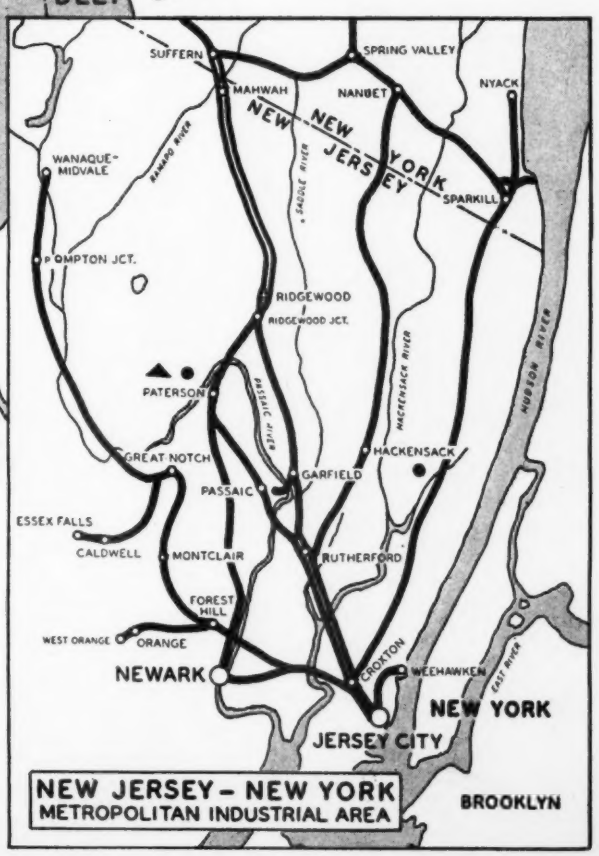
During the past five years the Erie's lines have carried an average of about 40,000,000 net tons of freight per year. Gross ton-miles last year totaled 20,987,668,000. The road's Susquehanna division carries the heaviest tonnage of any territory, handling 20,748,751 gross tons per mile of road last

year. The territory with the heaviest density of traffic is the New York division where an average of 16 passenger trains and 34 freight trains operate daily.

Last year, the Erie's total operating revenues were $152,086,511, and its expenses for maintaining roadbed and structures totaled $20,887,946, giving the road an M/W ratio of about 13.5, including depreciation and retirements. An inspection of records over the past few years shows that the Erie's M/W ratio has held fairly constant at about this level. Its operating ratio has averaged about 77 during recent years.

The Erie can be considered as a railroad which operates under fairly representative conditions, locationwise. The road's lines traverse about every type of geography, including mountains, valleys and plains. It maintains extensive water-front facilities in both the New York and Cleveland areas. Between Jersey City and New York both passengers and freight are ferried across the Hudson river. At Cleveland extensive facilities are provided for transferring ore from lake boats to railroad cars.

During winter months the Erie has a fairly heavy snowfall to contend with, particularly in the Buffalo area where snow storms of blizzard proportions are not at all uncommon.



Engineering and Maintenance

CHIEF ENGINEER
B. BLOWERS

ASST. CHIEF ENGINEER
M OF W
J. S. PARSONS

ASST. TO CHIEF ENGR.
A. K. FROST

ASST. CHIEF ENGINEER
ENGINEERING
H. M. SHEPARD

SUPV. WORK EQUIP.
AND WELDING
F. N. SNYDER

SUPV. MATERIALS
C. G. GILKISON

SUPRV. SCALES & WEIGH.
R. AMERICA

TIMBER & TREATMENT
INSPECTOR
G. S. BULL

SIGNAL ENGINEER
W. S. STORMS

ASST. SIGNAL ENGR.
F. YOUNGWERTH

GEN. SIGNAL INSP.
(2)

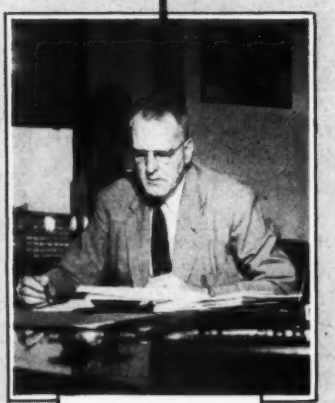
SUPT. COMMUNICATIONS
F. H. MENAGH

ASST. SUPT. COMM.
G. D. POOLE

COMMUNICATIONS ENGR.
W. J. YOUNG

GENERAL FOREMAN
W. J. LYONS

LINE INSP. AND
MAINTENANCE SUPRV.



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ASST. ENGR. STRUCT.
B. J. SHADRAKE

ASST. TO ENGR. STRUCT.
P. C. CHAMBERLAIN

CHIEF DRAFTSMAN

SUPERVISOR BRIDGES
W. K. MANNING

STRUCTURAL STEEL
GANGS (5)

GENERAL BRIDGE INSP.
L. A. RODE

BRIDGE INSPECTORS
(3)

OFFICE ENGINEER
W. O. BOESSNECK

ESTIMATING
ENGINEER

ASST. ENGINEER

CHIEF OF CORPS

PLAN FILE CLERK

BLUE PRINTER

TRANSMISSION LINE
ENGINEER
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SUPT. CONSTRUCTION
A. B. FOWLER

ASST. SUPT. CONST.
W. R. SWATOSH

ASSISTANT TO
SUPT. CONSTRUCTION
S. M. BIELSKI

RESIDENT ENGINEERS

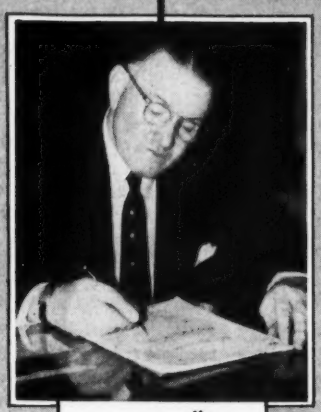
ENGINEER ACCOUNTANT

GRADE CROSSING ENGR.
S. B. GILL

CLEARANCE ENGR.
J. C. SCHOLTZ

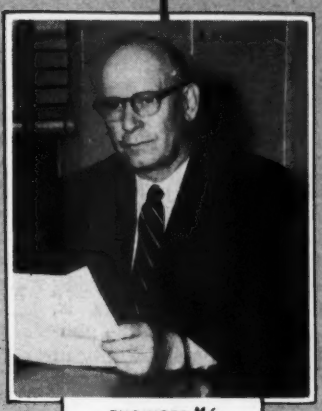
Departments . . .
. . . How They're Organized

"Chains of command" and division of responsibilities for Erie system and its two districts are outlined here. A typical division organization is also shown. Dotted lines indicate indirect supervision.



ENGINEER M/W
WESTERN DIST.
H. J. WECCHEIDER

- DIVISION ENGR. R. H. JORDAN
- DIVISION ENGR. R. J. PIERCE
- DIVISION ENGR. J. P. MORRISSEY
- DIVISION ENGR. L. ROSSMAN



ENGINEER M/W
EASTERN DIST.
L. H. JENTOFT

- DIVISION ENGR. W. F. PETTEYS
- DIVISION ENGR. A. PRICE
- DIVISION ENGR. W. E. SMITH
- DIVISION ENGR. L. M. SWOAP

Typical Division Organization

- DIVISION ENGR.
  - ASST. DIV. ENGR.
    - TRACK SUPERVISOR
      - GENERAL FOREMEN
        - CLERK
        - TRACK FOREMEN
        - TRANSITMAN
        - LEVELMEN
    - TRACK SUPERVISOR
      - GENERAL FOREMAN
        - CLERK
        - TRACK FOREMEN
        - HEAD OF CORPS
        - STENOGRAPHER
    - TRACK SUPERVISOR
      - GENERAL FOREMAN
        - CLERK
        - TRACK FOREMEN
        - CROSSING SUPRV.
        - CROSSING WATCHMEN
    - SIGNAL SUPERVISOR
      - ASST. SIGNAL SUPRV.
        - FOREMEN OF SIG. MAINTAINERS
        - REQUISITION CLERK
        - SIGNAL CONSTRUCTION GANGS
    - MASTER CARPENTER
      - ASST. MASTER CARPENTER
        - PLUMBER GANG
        - CARPENTER GANGS
    - CHIEF CLERK
      - ASST. CHIEF CLERK
        - TIME AND MATERIAL CHECKER
        - REQUISITION CLERK
        - STENOGRAPHER
    - LEADING CLERK

ERIE REPORT

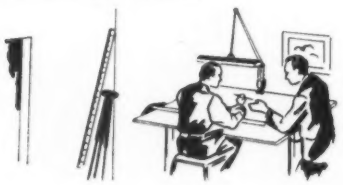
Engineering and Maintenance Departments

Work Together as a Team

● As can be seen from the organization chart on the preceding pages, the engineering and maintenance functions on the Erie are split into two separate organizations. However, the two work closely together under the direction of one chief engineer. Generally speaking, the engineering section handles all new work, while the maintenance force, as its name implies, is responsible for maintaining tracks and structures. There is, however, one exception to the general breakdown of responsibility in the case of the department of structures which is discussed elsewhere on this page.

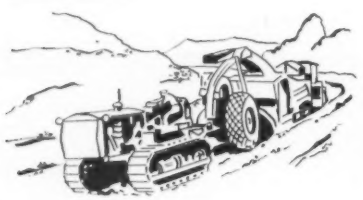
The principal departments, their responsibilities and how they fit into the overall engineering and maintenance picture are described below:

Office Engineering



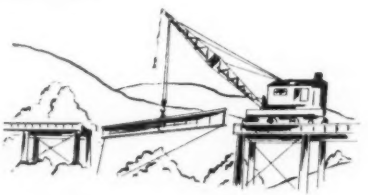
Working under the general supervision of the office engineer, this part of the engineering section handles all large-scale field surveys, drafting, making of estimates and specifications, and blueprinting. The office engineering force is divided into four groups, namely: blueprinting, plan filing, general drafting and a floating field survey corps.

Construction



Some new construction work on the Erie is handled by contract. The erection of smaller bridge structures, shops and office buildings and the building of track is handled by company forces. It is the responsibility of the construction department to obtain bids, draw up and award contracts to low bidders, and supervise all work performed by outside parties. In addition, a resident engineer and other forces, as required, are furnished to protect the railroad's interests where other construction work infringes on railroad property.

Structures



This department, headed by the engineer of structures, is in charge of the design of all major structures and the erection of all steelwork which is not handled by contract. Other responsibilities include the repair and maintenance of steel bridges, as well as steelwork in buildings.

Painting of steel bridges is sometimes done by the department of structures forces, but only, as a general rule, when the painting is in conjunction with repairs to steel.

Roadway Maintenance

Maintenance of tracks, roadbed and right of way is handled on a district and divisional basis, all under the general direction of the assistant chief engineer, maintenance.

The railroad is divided into two districts, each coming under the general supervision of an engineer, maintenance of way. Each of the districts is divided into four segments comprising one or more operating divisions. The four segments are each supervised by a division engineer, making a total of eight division engineers on the system.

Direct supervision over roadway maintenance on the divisions is handled by track supervisors whose territories cover from 80 to 100 miles of double track or the equivalent. There are 25 track supervisors over the entire system, divided equally between the two districts.

B & B Maintenance

Bridge and building maintenance, except for steelwork, is on the same divisional basis as track maintenance. Direct supervision over maintenance is handled by eight master carpenters, one on each division engineer's territory. In addition, there are five assistant master carpenters, one of whom is located on each division where circumstances warrant more supervision than can be given by the master carpenter alone.

The master carpenter's forces on each division maintain all wood, concrete and masonry bridge structures as well as bridge decks above the steelwork. They are also responsible for bridge painting, except in cases where the department of structures' forces are making repairs to steel.

The master carpenter's organization takes care of maintenance and repairs to all buildings and other structures, except for the steel components of those structures. The maintenance of all steam, fuel, air and water lines also falls under the jurisdiction of the master carpenter.

Furthermore, the division forces handle construction of smaller buildings and other structures, not handled by contract.

How Management Feels About . . .

- Allocation of Money for MW&S
- Programming Work
- Deferring Maintenance
- Detouring Trains for M/W Work
- Property Improvements

To gain an insight into the general attitude of the Erie's management towards engineering and maintenance policies and practices *Railway Track & Structures* interviewed M. G. McInnes, vice president operations. The questions put to Mr. McInnes and his answers are presented below.

M. G. McInnes

Q. Mr. McInnes, how would you sum up the Erie management's attitude toward engineering and maintenance of roadway and structures? From what has been observed on your road, one gets the impression that you don't look upon these departments purely as "necessary evils" to operating a railroad.

A. Although the activities of the Erie are departmentalized, we feel that all are important in accomplishing our prime purpose, i.e., providing good service to our patrons in the safest and most economical manner possible. The work of the mechanical, engineering and maintenance of way and transportation departments must be integrated and coordinated if this is to be accomplished.

Q. Your railroad has a rather low maintenance ratio. How do you account for this in view of your high standards for maintaining tracks and structures?

A. We feel that we have a high standard of maintenance with no deferred maintenance. However, we are not satisfied that further reductions are not possible in our maintenance ratio by improved methods and increased mechanization.

Q. Just how does the management feel about the general concept of deferring maintenance in times of declining revenues?

A. It is not our policy, as a general thing, to defer maintenance during times of declining revenues.

Q. In general, what is the basis for allotting money for engineering and M of W & S expenditures?

A. Late in the fall of the preceding year engineering and maintenance of way work is programmed and a yearly budget set up based on estimated revenues for the coming year.

Q. After the yearly budget has been approved are engineering and maintenance officers able to depend on having this money available for their work; or, is it subject to month-to-month fluctuation dependent upon revenues?

A. As a general rule, after the yearly budget has been approved and programs set up, they are not subject to month-to-month fluctuations dependent upon revenues.

Q. Are the chief engineer and his department heads given a free hand in spending the total amount of money set up in the budget; or is the money earmarked by management for specific purposes within the overall engineering and M of W & S budget?

A. Other than an amount of money set up for yearly depreciation and yearly retirements of non-depreciable property, the heads of departments are given a free hand in spending the money.

Q. In general, how does the management feel about the policy of programming maintenance work?

A. Erie management considers it of paramount importance to program maintenance work well in advance of the actual working season.

Q. What is the general attitude of the Erie's operating department towards the practice of grouping, bunching and detouring trains in conjunction with heavy maintenance work on tracks and bridges?

A. Our operating department cooperates with the maintenance and engineering departments to the fullest extent in such matters, and trains are detoured wherever and whenever it is practical to do so.

Q. It has been observed in traveling over the Erie that the condition of station facilities, even in small communities, is very good. The interiors in particular seem to be unusually modern and up-to-date. How can these expenditures be justified?

A. We feel that we are a "going concern"; therefore, the appearance of our properties should reflect that feeling. Buildings and grounds in good condition are good public relations with the communities and our customers, and are morale builders for our employees.

Q. What measuring stick is used by management in making decisions regarding property improvements?

A. Decisions as to property-improvement projects are based on factor of safety, service to customers, improvement of public relations, benefit of employee morale and return on investment.

SPECIAL REPORT

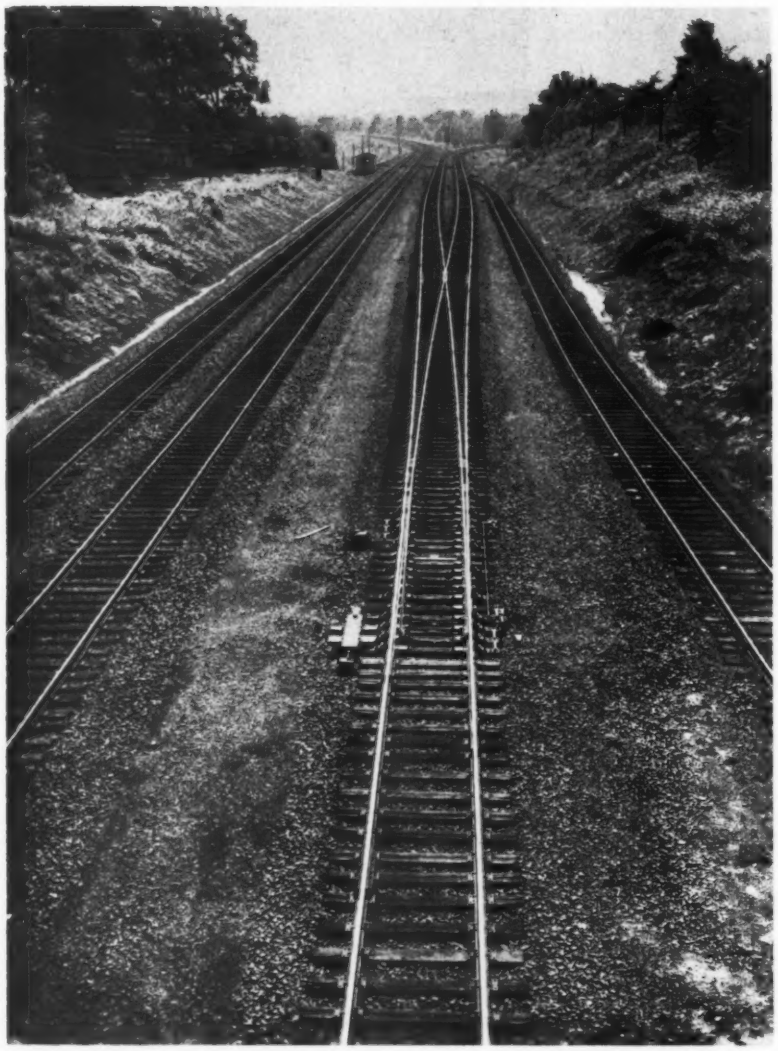
ERIE

TRACK

Heavy Traffic Requires

High Track Standards

Top-grade track is a practical "must" on almost all the Erie system. The road has but few secondary or branch lines where, because of light traffic, a lighter standard of track maintenance will suffice. Track standards and how they are maintained are discussed here.



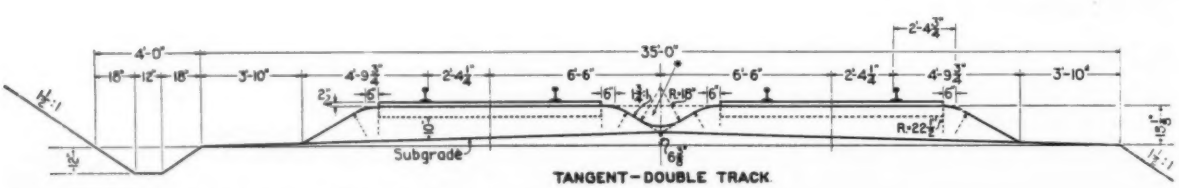
MULTIPLE TRACK main line with No. 24 equilateral turnout at Howells Jct., N. Y., is an example of Erie's heavy-duty high-speed trackage.

Rail—The Erie is currently laying three different weights of new rail, depending upon the tonnage carried in the territory where the rail is laid. In what the road calls its "heaviest duty" territories, the 140-lb RE section is being used in the territories classified "ordinary heavy duty," the 132-lb RE section is laid; and on lighter-duty track 115-lb RE is provided. Rail used on branch lines comprises various sections of relayer rail from 110 lb to 132 lb, which has been released from main-line track.

Existing rail on the road's main lines at the present time includes the following sections: 110-lb (punched for 4-hole bars), 110-lb (punched for 6-hole bars), 112-lb (punched for 6-hole bars), 115-lb, 130-lb, 131-lb, 132-lb, and 140-lb. On branch lines practically all rail of less than 110-lb section has been or soon will be replaced with heavier relay rail.

Joint Bars—Where available for the particular rail section being laid, the Erie uses flanged joint bars of the Rail Joint Company design without spike slots. In the case of the 140-lb section, a flanged bar is not readily available; therefore, a 39-in 6-hole toeless bar is used. For its 132-lb and 115-lb sections, a 37-in 6-hole flanged bar is specified. On 131-lb, 130-lb, 112-lb sections, and on most of its 110-lb rail, flanged 6-hole slotted bars are applied. The remainder of the 110-lb rail is equipped with flanged four-hole slotted bars.

Officers report that they have used the flanged bar for many years with such success that they



STANDARD DESIGN of Erie's tangent double-track roadway is shown by this cross-section.

What They Do About Weeds

Weed control on an extensive scale is an established phase of the Erie's maintenance-of-way operations. In this effort the road has kept abreast of modern developments in weed control chemicals, and also employs a variety of other methods where they are warranted by conditions.

As evidence of the emphasis placed on vegetation control the road has established the practice of spraying the track out to the ditch lines on all of its main lines and all of its main branch lines. On lesser branch lines the road carries out weed-burning operations where they are permitted by local regulations.

Track-spraying operations are done under contract by several different concerns. The applications are made under the railroad's supervision but in each case the formulations used are those recommended by the manufacturer. Spray applications are made once a year in the month of June. The exact time is determined in accordance with the contractors' recommendations.

During the 1955 season these spraying operations were extended to include the Erie's yard at Buffalo. A frequent practice is to burn the weeds in yards but where this is not permissible a chemical in powder form is used, which is applied by railroad forces using equipment loaned by the manufacturer.

Dry chemicals are also used extensively for the control of vegetation in the vicinity of such installations as fuel-oil storage tanks and around timber bridges of which the Erie has a limited number. These are made by company forces.

can see no reason for adopting the toeless bars, except in cases where the flanged bar is not available. The feeling is that the flanged joint, because of its angle-bar design, gives added strength to a rail joint, over and above what can be expected from the toeless-type bar.

Tie Plates—For use with 132-lb and 140-lb rail, the Erie has adopted the 7½-in by 13-in (AREA design No. 10) tie plate. On tangent track, the flat-bottom design is used, while on curves a waffle bottom is specified. In addition, a 7½-in by 14 ¾-in (AREA design No. 13) tie plate is used under joints of its 132-lb rail. The 115-lb section is laid with 7½-in by 13-in (AREA design No. 7) plates on both tangent and curved track.

Track Spikes—The Erie uses a ⅝-in by 6-in reinforced-throat cut spike for line. For tie-plate holddown the road uses screw spikes; however, cut spikes, Racor studs and lock spikes are currently being tested. At some locations, no holddown spike is being used at all. Tylife is used when cut spikes are installed as holddowns. This greatly restricts the spikes from working up.

Crossties—On its main line and main branch lines the Erie uses 7-in by 9-in by 8½ ft treated oak and hardwood ties, while on light duty branch lines a 6-in by 8-in by 8½-ft tie is specified. The latter are also used in all yards and side tracks. Oak accounts for 75 per cent of the ties used, the remaining timber being mixed hardwood such as beach, birch, maple, etc.

Ties are treated with an 80 per cent creosote-20 per cent coal-tar formula. All ties are currently being incised at the treatment plants. The incising is being done to reduce splitting and checking which develops in the timber between the time ties are stacked for seasoning and the time they are delivered to the track.

Rail Anchors—The Erie uses many different types of rail anchors of both the drive-on and compression types. Anchors are applied with a standard of 10 per panel length and on the opposite side of the ties from the direction of heaviest traffic. In addition one or more reverse anchors are applied to box ties as necessary.

Ballast—On its main line the Erie follows AREA specification No. 3 as to ballast size, the range being from 1 to 2 in. On secondary lines the road uses specification No. 4, a ballast of from ¾ in to 1½ in in size. In the eastern territory, trap rock is used almost exclusively because of its availability, while in the western territories both blast-furnace slag and crushed limestone are used.

Special Trackwork—The Erie specifies railbound manganese for all of its frogs and railroad crossings in main-line track. In yards and terminals both self-guarded manganese and open-hearth frogs are used, depending on the wear to which they will be subjected. Samson points are standard for all frequently used switches. Both hook-flange and bolted guard rails are used at frogs, while switch point guards are placed ahead of turnouts where there is heavy divergent traffic.

No. 10 turnouts are standard for all minor sidings and industry tracks, except where track layouts make it necessary to use No. 8's or less. High-speed side track turnouts and crossovers are Nos. 16 and 20, except at a few locations where the road has installed No. 24 equilateral turnouts for "non-restricted" train movement. The Erie was the first railroad in this country to make use of the No. 24's (*RT&S*, Aug., 1954 pg. 54). Officers report such satisfactory results that several more of the units will probably be installed within the near future at locations where their use will expedite train movements.

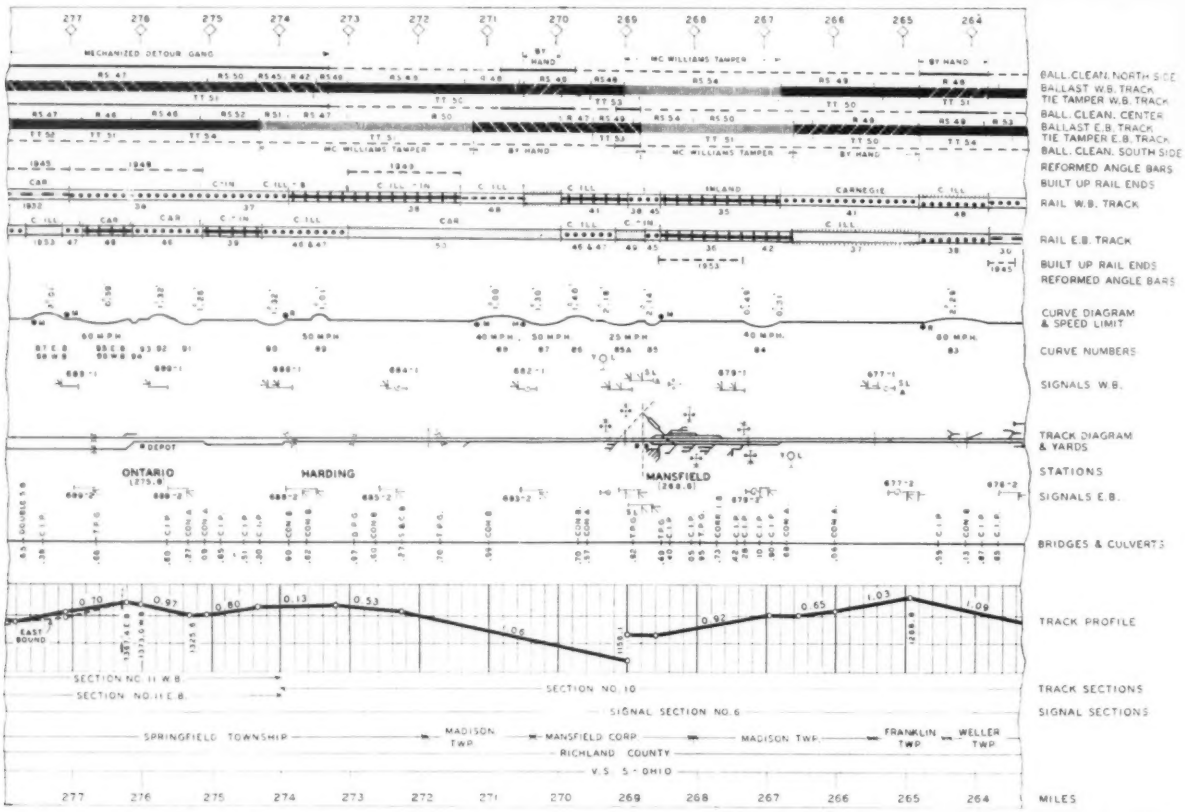
Rail Lubricators—In territories where there are one or more curves of 1 deg and over either Racor or Meco flange lubricators are installed at strategic points to reduce wear on the high rails.

Highway Crossings—At public road-crossings where traffic warrants more than just a ballast or gravel crossing, the Erie uses many types of crossing construction. In addition to wooden filler blocks, and bituminous materials, concrete slabs, open-grating type crossings, and, most recently, reinforced rubber sections are being used.

The latter type was tried out for the first time about a year ago on a heavy-traffic crossing in Akron, Ohio. (*RT&S*, Jan., 1955, pg. 53). The results have been so satisfactory that the road has installed another of the rubber crossings on a high-speed highway this year.

Service Tests—The search for better materials and devices for improving its track structure is being pushed continuously by the Erie. The road has underway a great many test projects scattered over the system where various materials and new ideas are tried out.

After a test installation has been made at a particular point, it is inspected at least once yearly by the division engineer and track supervisor on that territory. Occasional spot inspections are also made by representatives of district and system maintenance officers. The office of the assistant chief engineer, M/W, maintains a running record for each test.



TRACK CHARTS, illustrated here by reproduction of portion of chart for Kent division, are used by maintenance officers in planning and following up program work. The charts show practically every detail regarding the railroad and auxiliary properties. Various colors, used on the chart to indicate program work, are shown by an alternate legend. Each officer has chart for his district, which is used for reference during discussions and for making notations about current and future work.

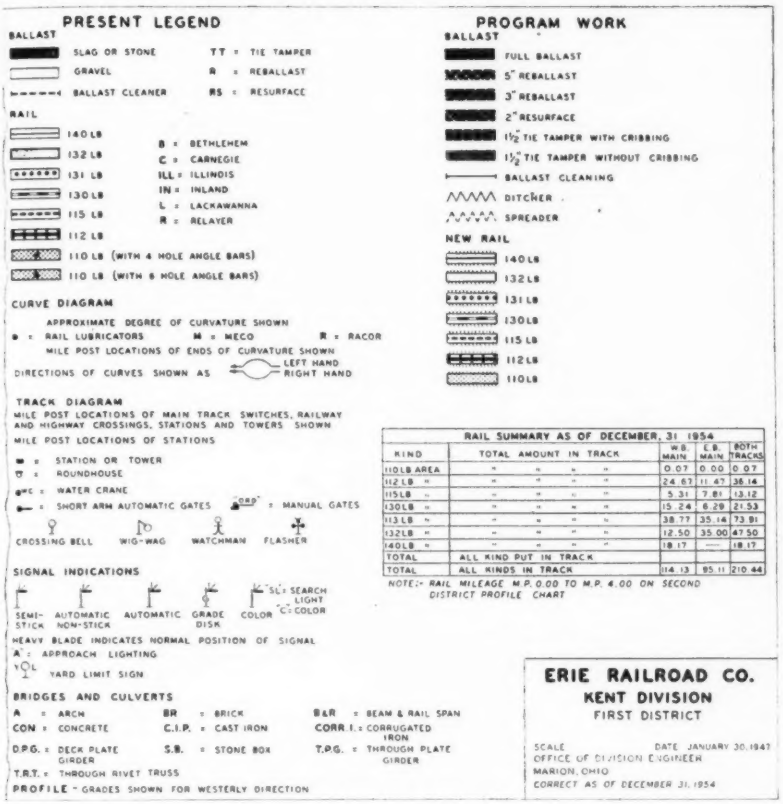
Advance Planning . . .

. . . Aid to a Low M/W Ratio

TRACK SUPERVISOR uses track chart to check location of some upcoming program work as he covers his territory on a motor car.

● Detailed programming and the ability generally to follow through with programs are among the most important factors contributing to the Erie's low M/W ratio, according to maintenance officers.

Planning of track-maintenance work on the Erie is a year-round job, not just something that is done towards the end of the year as an estimate for the following year's budget. The preliminary planning work is done by each track supervisor, who in covering his territory by train, motor car and on foot and through his contacts with track foremen, keeps a close check on what needs to be done and when. The supervisor's recommendations are checked, rechecked and discussed at length with his division



RAIL SUMMARY AS OF DECEMBER, 31 1954

KIND	TOTAL AMOUNT IN TRACK	W.B. MAIN	E.B. MAIN	BOTH TRACKS
110LB AREA	" " " "	0.07	0.00	0.07
112 LB "	" " " "	24.67	11.47	36.14
115LB "	" " " "	5.31	7.81	13.12
130LB "	" " " "	15.24	6.29	21.53
133 LB "	" " " "	38.77	35.14	73.91
132LB "	" " " "	12.50	35.00	47.50
140LB "	" " " "	18.17	——	18.17
TOTAL	ALL KIND PUT IN TRACK			
TOTAL	ALL KINDS IN TRACK	114.13	95.11	210.44

NOTE:- RAIL MILEAGE M.P. 0.00 TO M.P. 4.00 ON SECOND DISTRICT PROFILE CHART

ERIE RAILROAD CO.
KENT DIVISION
FIRST DISTRICT

SCALE DATE JANUARY 30, 1947
OFFICE OF DIVISION ENGINEER
MARION, OHIO
CORRECT AS OF DECEMBER 31, 1954

engineer, the district engineer maintenance of way and assistant chief engineer, maintenance, at various times throughout the year.

In this manner maintenance officers keep a running account of what work should be done the following year. They also have an idea of the preference rating of each individual job, i.e., whether it falls into the category of "must," "badly needed," "needed," or "if possible."

Along in November of each year, the assistant chief engineer maintenance, is advised by management about how much money he will have available for the next year, based on estimated revenues for that year. With this information at hand, and the recommendations of district and division maintenance officers, he prepares a tentative program for the following year. This program is only general, being broken down into the number of miles of the various types of work (new rail laying, relay rail laying, reballasting, resurfacing, and tie tamping.) The total miles of each type of work are further broken down into mileages for the Eastern and Western districts, respectively.

The district engineers maintenance of way then take these total mileage figures for each type of work and allocate mileages to each division engineer. Based on these mileages, the division engineers draw up detailed track programs outlining milepost locations of the various jobs and other information.

The programs are then forwarded to the engineers maintenance of way of the respective districts who check them over carefully, make any adjustments necessary and send them to the general office with their approval. After reaching the general office, the programs are again checked over by the assistant chief engineer, maintenance and his staff.

About the first of the year, a revised estimate of the total money available for maintenance is given by the management, based on revisions in anticipated revenues. The yearly budget is then drawn up and adjustments are made as necessary in the detailed maintenance program to conform with the budget allotment.

From the first of the year until about the middle of April, when heavy maintenance work has begun, considerably more planning is required. Determining the type of gang organization, the equipment to be used and the schedule each gang will follow through the working season is an important part of this late-winter and spring planning.

After program work begins in the spring and throughout the working season, detailed weekly reports are made by each division, covering all of the various types of program work being carried out on its territory. In this manner district and system officers maintain close contact with programs of work and are able to make adjustments in the scheduling of upcoming jobs.

How Tie Requirements Are Figured

In setting up the track maintenance program for the following year, tie requirements are worked out on the basis of estimates made in the assistant chief engineer's office. Since the Erie renews ties on a 6-yr. cycle in conjunction with reballasting and resurfacing, tie requirements can be approximated with a fair degree of accuracy for this out-of-face work. These requirements are based on the average renewals per mile and the number of miles of reballasting and resurfacing set up in the programs. Dig-in (maintenance) renewals can also be anticipated closely from past records.

In the spring, before programmed work begins, each track supervisor walks his entire territory and marks all ties to come out that year. He then makes a detailed report of his tie requirements giving milepost locations, the number of ties and whether they are to be dug-in or renewed in connection with programmed track reconditioning.

The track supervisors' tie reports are consolidated by the division engineers, who advise the respective engineer maintenance of way of their total requirements. After the tie requirements for each district have been totaled, they are forwarded to the assistant chief engineer, who compares the total figure obtained by inspection with the estimated figure set up in the budget a few months before. Adjustments are then made in the division recommendations, and the district engineers, division engineers and track supervisors advised accordingly. Officers report that, as a general rule, recommendations coming in from the divisions are very close to estimated requirements set up in the budget.

CRAWLER TRACTORS with boom attachments are used almost exclusively for laying rail. Outfits are used on or off track, depending on conditions.

MANY OTHER pieces of equipment, like this adzing machine, are also used.

Small Highly Mechanized Gangs

Lay Rail on Divisional Basis

● Contrary to the trend on many roads towards the use of large system gangs for rail laying, the Erie has stuck to the smaller, well-equipped divisional crews for laying its steel.

Each division is supplied with its own complete set of mechanized equipment for laying rail. The equipment includes bolt machines, spike pullers, adzing machines, tie sprayers, and spike drivers. An unusual feature of the Erie's setup is the use, on most jobs, of crawler tractors with boom attachments for handling rail. Special notched treads are used on the tractors, permitting them to be operated either alongside the track on the subgrade shoulder, or on the rails.

The tractors, according to Erie officers, have two distinct advantages over conventional rail-laying cranes. In the first place the machines can be easily and quickly driven off or onto the track when clearing trains. Secondly, when not being used for laying rail, the units, which are equipped with bulldozer attachments as well as bucket attachments for the boom rigging, can be put to work elsewhere on a variety of jobs.

Men for the divisional rail-laying gangs are recruited from regular extra-gang forces engaged in tie-renewal and surfacing work. When a stretch of rail is to be laid, one or more extra gangs working in the vicinity are taken off their regularly assigned job to lay rail. Section gangs are used to supplement the extra-gang forces.

Erie's policy is to lay rail just before the track is retimbered and resurfaced at a given point. In this manner the laying of new rail becomes a part of a complete overhauling program on a particular section of line. The road does not adhere to the policy of laying large mileages of rail each year without making provision for retimbering and resurfacing immediately behind the rail laying.

Erie supervisors check rail wear over their territories periodically with calipers. These findings are the determining factor in making rail renewals; tonnage carried by the old rail is considered secondary in importance.

On curves, the road follows the practice of turning rail on the high sides of curves where head wear has not exceeded ½ in. When the rail is worn more than ½ in., it is replaced with new rail. Officers of the road report they have experienced no failures in the turned rail.

The Erie is planning to try out the new Speno rail-grinder train on approximately 100 miles in the near future. The grinder train will be used on rail which the road had originally planned to relay in 1956 and 1957. It is hoped that by grinding out corrugations, engine burns, joint batter and post batter this rail will not have to be replaced for several more years at least.

Statistics on Erie Rail and Rail Laying

RAIL IN TRACK
(Total, end of 1955)

Weight (lb)	Mileage
140	36.83
130, 131, 132	1,156.97
115	264.00
112	798.23
110	410.54
Less than 110	518.81
Total	3,185.38

NEW RAIL LAID THIS YEAR

Weight (lb)	Mileage
140	2.02
132	43.94
115	9.04
Total	55.00

RELAY RAIL LAID THIS YEAR

Weight	Mileage
Various	40.04

NEW RAIL LAID PER YEAR
(Average since 1950)

Weight (lb)	Mileage
140, 132, 115	103

PRODUCTION-LINE tie renewals and surfacing at the rate of better than ½ mile per day, out of face, with the Erie's new completely mechanized "detour gang." The 35-man crew works on "dead" track with trains operating on adjacent track.

In Track-Reconditioning Work . . .

Mechanization — "The Big Pay Off"

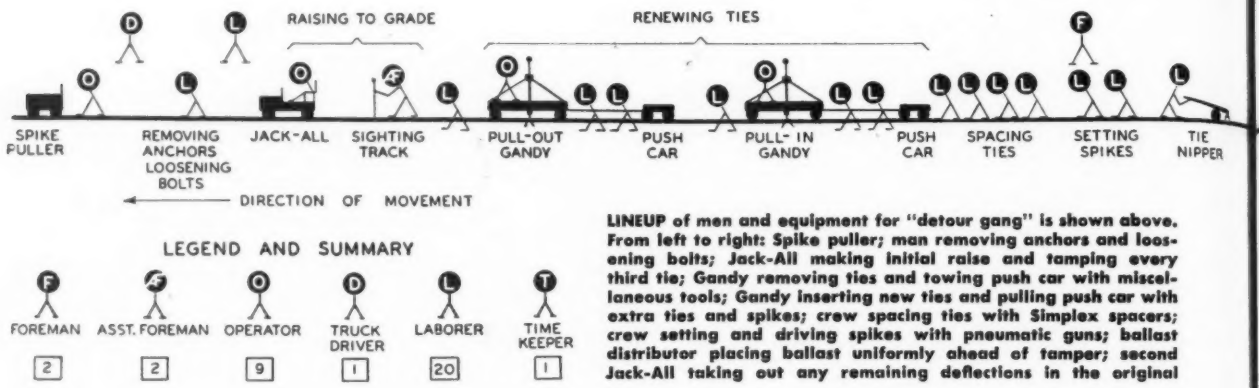
● Complete reconditioning of its main-line tracks every six to eight years—that's the Erie Railroad's "new look" program for track maintenance.

Erie officers report that "cycled maintenance" (renewing ties and surfacing track out of face at a given location every six or eight years, with only routine maintenance and no tie renewals in the interim years) is proving satisfactory.

Two important advantages are claimed for the cycled-maintenance setup. In the first place, ties can be renewed much more cheaply when the work is done in conjunction with out-of-face surfacing using highly-mechanized gangs. Secondly, the track structure is progressively improved over the years rather than just "maintained" at the present quality level.

As a forward step in its plans for eventually cycling all tie renewals and surfacing, the Erie is in the process of revamping and further mechanizing its track-reconditioning gangs. The road organized and used for the first time this year a fully-mechanized organization of 35 men for renewing ties and surfacing on its Western district. The organization, called the "detour gang" because trains are routed around it on an adjacent main track, was able to average about ½ mile of track per eight-hour day, including renewing an average of 650 ties per mile. This production figure included unproductive time lost while moving from job to job and because of bad weather.

ERIE REPORT



LINEUP of men and equipment for "detour gang" is shown above. From left to right: Spike puller; man removing anchors and loosening bolts; Jack-All making initial raise and tamping every third tie; Gandy removing ties and towing push car with miscellaneous tools; Gandy inserting new ties and pulling push car with extra ties and spikes; crew spacing ties with Simplex spacers; crew setting and driving spikes with pneumatic guns; ballast distributor placing ballast uniformly ahead of tamper; second Jack-All taking out any remaining deflections in the original

The Erie plans eventually to have three of these "detour-gang" organizations for use on lines where traffic can be detoured. Maintenance officers feel that in order to make the most efficient use of the high-speed organization, exclusive track occupancy is required for a minimum of 7 hr. per day. Where possible, the track on which work is in progress is closed to traffic for the full 8-hr. working day.

To permit trains to be detoured around the gangs on an adjacent main track with as little interference to operations as possible, temporary crossovers, or a combination of temporary and existing crossovers, are provided on each side of the location where the gang is working. The distance between crossovers is held to a maximum of about 10 miles; the crossovers used are No. 10 with a speed restriction of 10 mph.

The 35-man working force consists of two foremen, two assistant foremen, 20 trackmen, 9 operators, 1 truck driver and a timekeeper. Equipment used by the gang includes 11 machines. They are:

1—Fairmont spike puller
2—Kershaw Jack-Alls
2—Nordberg Gandys
1—Ingersoll-Rand Model D-660 air compressor with two pneumatic spike hammers
1—McWilliams Ballast Distributor
1—McWilliams Multiple-Tool Air Tamper
1—Railway Track-work Model P-O Track Liner
1—Kershaw Ballast Regulator
1—Kershaw Track Broom

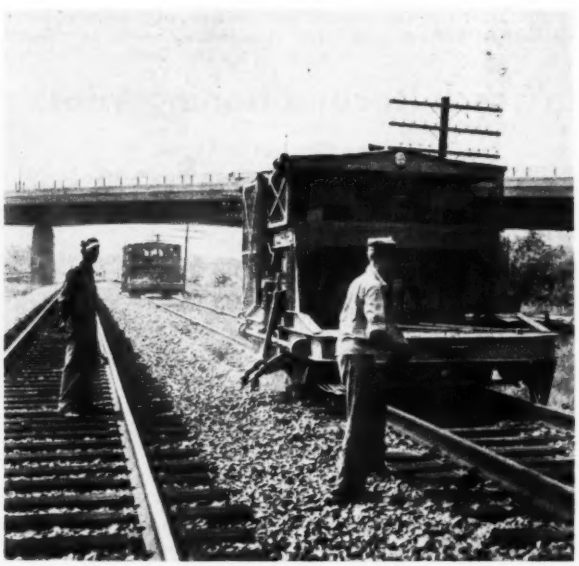
Working like a factory production line, except that the machines move through the material rather than the material through the machines, the track-reconditioning organization is made up of a number of individual operations, all integrated so that they function as a single unit. The machines and men move over the track in sequence as shown by the silhouette drawing at the top of these pages.

At locations where the "detour gang" cannot be used effectively because of train operations, the road is currently using 36-man gangs which renew ties and tamp by hand. The latter gangs are followed up about a year later by power-tamping gangs which make a finished surface over the territory covered by the tie-renewal crew the previous year.

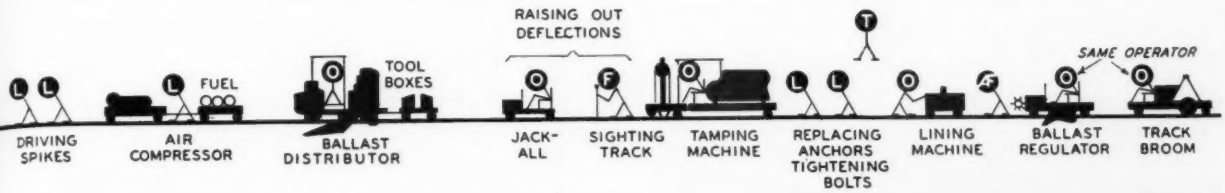
Maintenance officers report that the "detour gang" can do about five times as much work as the 36-man gangs in a given period of time. Furthermore, the track covered by the mechanized gang has

On-Track Tamper Gangs . . .

TAMPER GANGS are used for 1½-2-in smoothing raises following tie-renewal work where tamping is done by hand.



POWER BALLASTERS, generally working in tandem as shown here, are among three types of on-track tampers used by Erie.



raise; tamper; men replacing anchors and tightening bolts; hydraulic track liner; Ballast Regulator; and Track Broom (one operator for both machines). At locations where the detour gang cannot be used effectively because of train operations, the road is currently using a 36-man tie gang which tamps by hand. The latter gang is followed by power-tamping gang.

been solidly power-tamped thus eliminating the power tamping required the following year when the work is done by hand.

Another factor is the economy brought about by the savings in ballast requirements by the mechanized gang. The latter uses an average of 525 tons of ballast per mile, as compared with 850 tons per mile required for the hand-tamped, tie-renewal work and the "follow-up" power tamping the next year.

TRACK BROOM is used in conjunction with Kershaw Ballast Regulator for equalizing ballast and "dressing up" behind "detour gang."

Three Types of Work

Track-reconditioning work is divided into three principal categories. These categories and an explanation of the type of work involved in each are as follows:

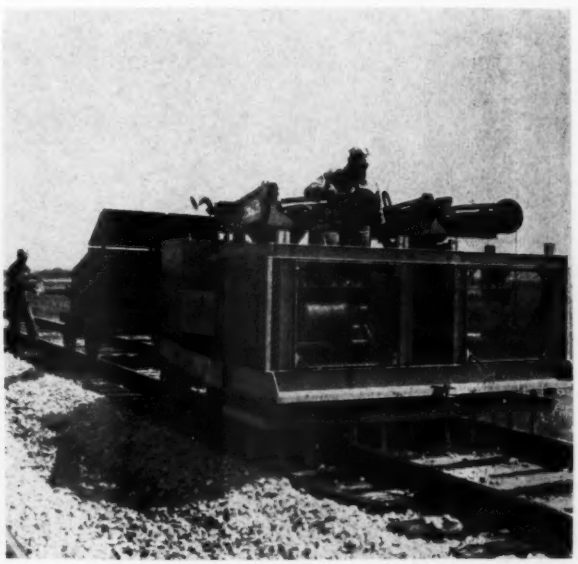
(1) *Reballasting*—Complete track reconditioning where tie renewals are heavy and ballast is cleaned and cribbed as necessary ahead of the track raising. A raise of 3 in. on main lines and 5 in. on branch lines is standard for this work.

(2) *Resurfacing*—When tie renewals are comparatively light and a track raise of only about 2 in. is used, the road classifies the work as resurfacing.

(3) *Tie Tamper*—This is the designation given to track-surfacing work when a smoothing raise of 1¾ in. to 2¼ in. is made with few tie renewals. Tie-tamper work is usually done the year following reballasting, where the latter has been done with hand tamping.

For the work in categories Nos.

McWILLIAMS Multiple-Tool Air Tamper is another type of on-track unit used with tamper gangs.



NEW NORDBERG Automatic Gang Tamper has recently been added to the road's on-track tamper fleet.

ERIE REPORT

"Off-Track" Tamper Gangs . . .

HEAVY TRAFFIC at many points requires use of "off-track" tamper gangs like this equipped with 12-tool Crawlairs.

SMALLER GANGS engaged in short surfacing jobs, such as through crossing and switches, use 8-tool Tractairs.

1 and 2, the Erie expects eventually to partially mechanize all of its gangs. The "detour gangs" will of course be used for this work at all locations where it is possible to detour traffic. At other points the road will use its partially mechanized organizations to work under traffic. In all probability, most of the machines now furnished the "detour gang" will be used by the gangs working under traffic, except for the ballast distributor and power tamper. The other machines will be retained since they can be removed from the track quite readily to clear trains.

For its tie-tamping work (category No. 3) The Erie is completely mechanized with both on-track and off-track tamping units. The road uses on-track tampers where train movements will permit. At locations where traffic is the heaviest, the off-track outfits are worked. Three types of on-track power tampers are utilized by the road. These are: Pullman-Standard Power Ballasters, McWilliams Multiple-Tool Air Tampers and the new Nordberg Automatic Gang Tampers. Two types of off-track units—Ingersoll-Rand Crawlairs and Le-Roi Tractairs—are used for heavy, out-of-face tamping of the track.

The tamper gangs each employ somewhere around 20 men, depending on conditions. The Power Ballasters are generally used in tandem with each machine tamping every other tie. The McWilliams and Nordberg units work separately, one with each gang, and tamp every tie out of face. Track is lined behind the power tampers by RTW hydraulic track liners where available, otherwise by hand.

MOST LINING behind surfacing gangs is handled by two-man crews using RTW track liners. This outfit is shown in action behind "detour gang."

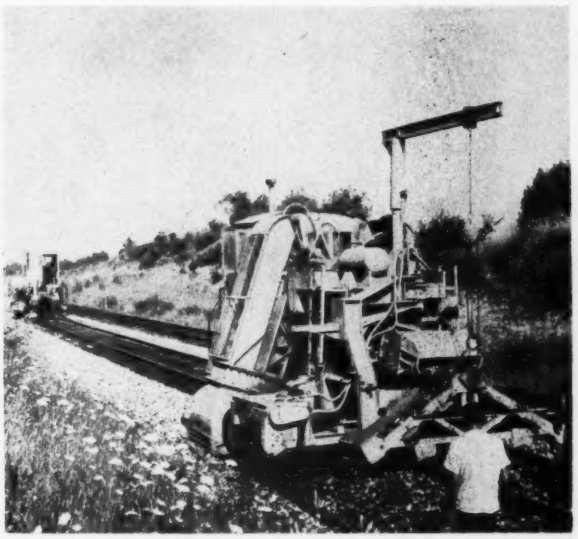
Hire Gangs Locally

Extra gangs are used during the working season for all of the Erie's heavy maintenance work. Personnel for the gangs, except for operators of larger machines, is recruited from the local area where work is being done. Foremen are selected from the track supervisors' territories to head the respective gangs. An assembly point is designated for each gang at a station somewhere near where it will be working, and the men are transported in trucks between assembly points and the work sites. Regular machine operators are housed in bunk cars or motor trailers at the assembly points.

Prior to using the "detour gang" for renewing ties and surfacing a given territory, ballast is cleaned out-of-face by a Pullman-Standard Ballast Cleaner or by a Nordberg Ballastex-Screenex unit. Furthermore, wherever the ballast is fouled the track is cribbed by two P-S Power Cribbers working in

Power Cribbing and Cleaning . . .

TRACK is cribbed at locations where ballast is fouled using two P-S Power Cribbers in tandem.



CLEANING of ballast is done at least every six years by P-S Ballast Cleaners or Nordberg Ballastex-Screenex.

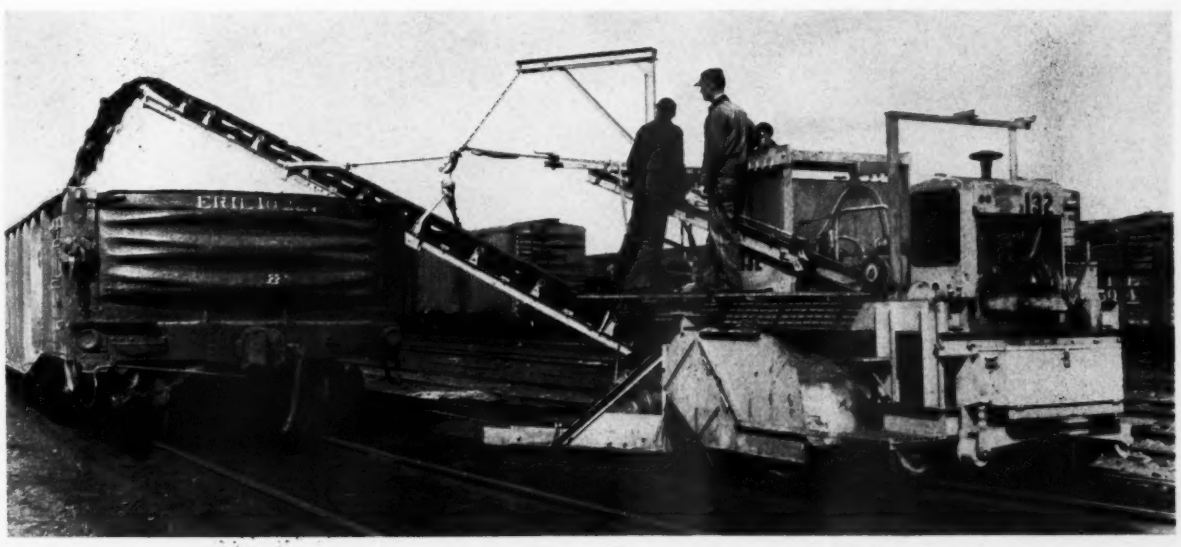
tandem. The cribbers work about two weeks ahead of the ballast cleaning unit, which in turn operates about two weeks in advance of the "detour gang."

Ballast cleaning is also done at least once every six years ahead of reballasting and resurfacing, where organizations other than the "detour gang" do the work.

Care in Unloading Ballast

Because officers consider a ballast section of standard proportions necessary for the maintenance of good track and because of the costly nature of the ballast used considerable care is taken in unloading to obtain the proper amount and distribution. The road, as a general rule, unloads all ballast ahead of tie-renewal and surfacing operations. Special "B"-type cars with both side and center-dump doors and hopper cars are used for unloading ballast. Trays or boards are used with the latter in order to control distribution of the new ballast. Where ties are to be renewed behind, ballast is usually unloaded at the ends of the ties, rather than across the full length of the tie.

As explained on a preceding page, track supervisors walk their respective territories in the spring of each year and mark ties to come out during the current season. When ties are delivered from the treating plant, they are unloaded by work trains along the track where they are to be used. By having all ties which are to be replaced clearly marked, new ties can be distributed almost "on the spot" as the work train moves along. This procedure saves a great deal of extra handling of ties through the working season as compared to the practice of stockpiling ties.



YARD TRACKS are cleaned periodically by power machines like the Nordberg DSL yard cleaner shown here.

Small Gangs Have "Big Job"

● Small track-maintenance gangs, although often overshadowed by their more dramatic "big brothers," are still a very important part of the Erie's maintenance set up. Included in these small gangs are the road's section crews and its division and district welding gangs.

A typical main line section on the Erie covers approximately 11 miles of double track or the equivalent, while on secondary lines a section comprises about 19½ miles of single track.

The section crews, consisting of a foreman and three or more men, take care of all routine maintenance jobs on their respective territories. These jobs include spot surfacing and lining, digging-in maintenance tie renewals, maintaining rail joints and switches, changing out defective rails, and care of the right of way and station grounds.

TYPICAL SECTION crew, comprising foreman and three men, takes care of routine maintenance on about 11 miles of main-line double track or equivalent single track.

Mechanization for Sections

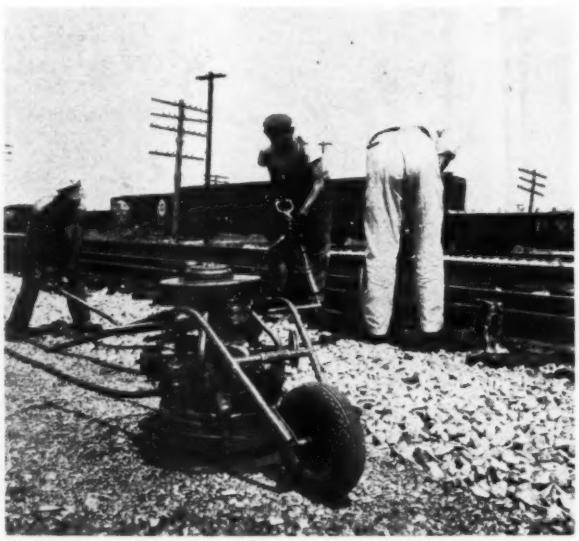
Mechanization has not passed by the section gang on the Erie. In addition to motor cars, push cars and standard track tools, the gangs are supplied with individual gasoline-powered tamping tools and portable air compressors for powering pneumatic tamping guns. Section men are also supplied with Simplex tie removers and tie spacers to aid them in digging-in and spacing ties.

A few gangs, primarily in or near terminals, have been outfitted with small stake-body trucks in which to transport the men and materials around their territory. The trucks are equipped with special anchoring devices for hauling a short-wheelbase push car in the bed of the truck, directly behind where the men ride. Two runners are provided to facilitate loading and unloading of the car.

To assist in maintaining rail, switch points, frogs and railroad crossings, the Erie has two types of welding gangs. One is its division welding crews, the other district welding gangs.

The division gangs, each comprising two men, are assigned to the various track supervisors' territories. The crews are equipped with a ¾-ton stake-body truck, and work out of their assigned headquarters, return-

GASOLINE-POWERED tamping tools are used extensively by section gangs for spot-surfacing work.



PNEUMATIC GUNS powered by Spot-Air compressors are also employed for small surfacing jobs.

Maintenance of Special Trackwork . . .

DISTRICT WELDING crews of two men, each with ¾-ton trucks and electric welding equipment, handle maintenance of all manganese trackwork and Samson switch points.

POWER GRINDERS aid welding crews in finishing off build-up jobs on trackwork. Oxyacetylene welding of open-hearth trackwork is done by division welding gangs.

ing home each night, except during emergencies.

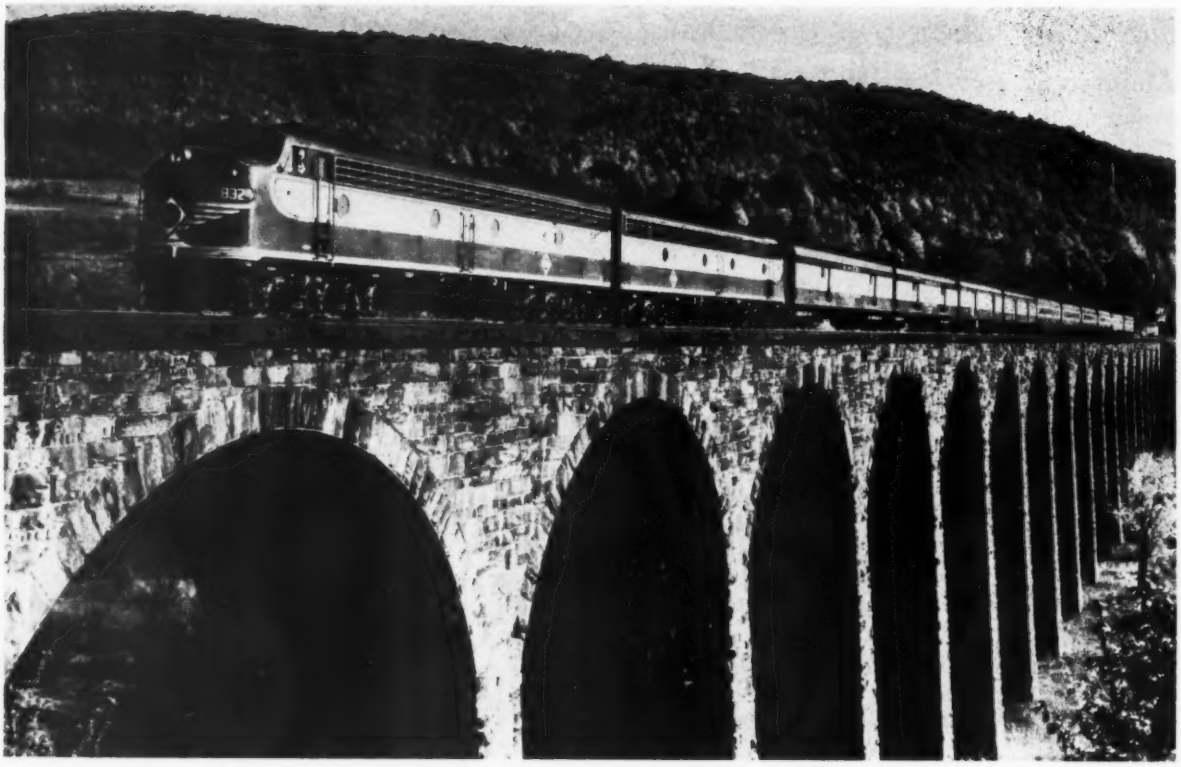
They are furnished with oxyacetylene equipment for work on open-hearth crossings, frogs and switch points. Furthermore, the division crews work with section gangs in changing out rail, turnouts, etc., and perform miscellaneous welding and cutting tasks on their respective territories.

The road's district welding gangs are responsibble for maintenance of all manganese frogs and crossings and Samson switch points. Each district has two of these gangs with each gang split up into two operating units. Each of these units comprises a welder, helper and sometimes an extra man for a lookout.

The crews are furnished with a ¾-ton stake-body truck, an electric welding machine and a power grinding outfit. They work all over the district to which assigned, and are quartered in house trailers. The gang's truck is used for pulling the trailer from point to point along the line, as well as for transporting the men and their equipment.

TIE REMOVERS like this Simplex outfit are a big help to gangs when digging-in maintenance ties.

SMALL TRUCKS are being furnished section crews at points where they can be used to advantage.



OLDEST BRIDGE and probably the most famous on the Erie is the Starrucca viaduct near Lanesboro, Pa. Built in 1847-48, the stone-arch structure is 1,040 ft long and 100 ft high at its highest point. Originally designed for single wide-gage track, the structure now carries two tracks.

SPECIAL REPORT

ERIE

BRIDGES

Good Bridges to Start With . . .

. . . Erie Keeps Them Up

Repair, strengthening and reconstruction of the road's 6000-odd bridge structures is an endless task, but one that has never been slighted. As in maintaining its tracks, the Erie feels that highest standards are a "must" for its spans.

● Permanent-type bridge structures of steel, concrete and masonry have been used almost exclusively by the Erie since its original lines were built over 100 years ago. The road has only a few timber trestles on lighter-traffic branch lines.

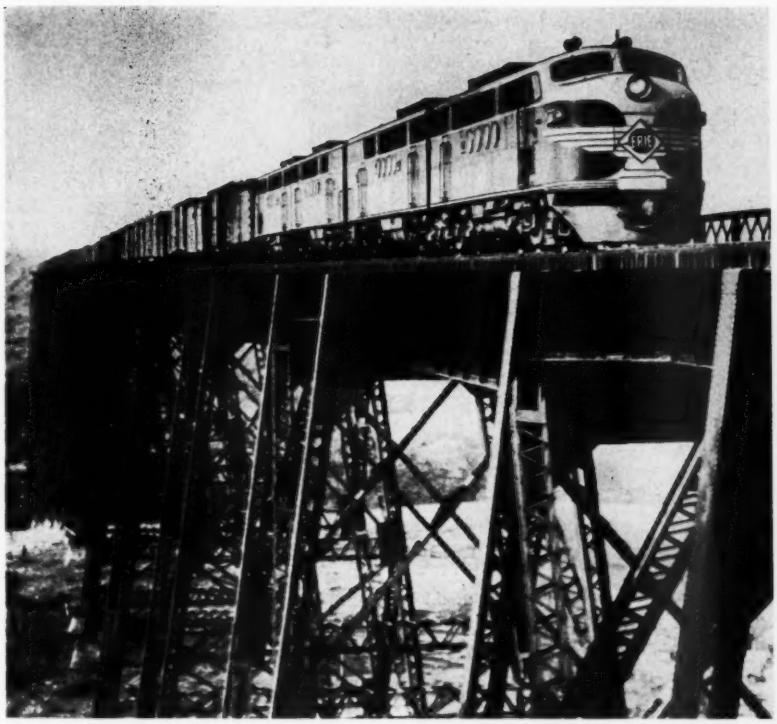
Since the design and construction of most of the original bridges were good and because the structures have been modernized and strengthened from time to time over the years, no major bridge-rebuilding program has ever been necessary on the Erie. During the late 1920's and early 1930's, when the road's new heavier Berkshire-type steam locomotives were put in service, an extensive bridge-strengthening program was carried out on the main line between Jersey City, and Marion, Ohio, and on the Buffalo line.

During 1942-1943, bridges on the main line between Marion and Chicago were strengthened in order to extend operation of the Berkshire locomotives through to Chicago. Since 1943 strengthening work has been carried out on certain branch lines to permit operation of heavier power and on certain main-line bridges which were not strengthened in the earlier program, to remove speed restriction. The switch to diesel power on the Erie has reduced somewhat the need for further strengthening.

Where the general conditions, age and type of details indicate that strengthening is uneconomical and that a bridge is inadequate, the structure is programmed for renewal. Capacity and speed restrictions are placed on it until renewal is completed. Since 1945 numerous short deck-girder spans, which were in need of extensive repairs, were replaced by new spans designed for Cooper's E-72 loading. Several large pin-connected truss spans as well as girder spans have also been replaced.

Repairs to bridges are carried out under an annual program based on regular inspection reports and supplemented by special caliper inspections when extensive repairs are necessary. Repair programs and strengthening are usually coordinated since all steel work is done by the same forces.

The road's general practice is to completely detail all repairs and strengthening in the drafting room and to make field checks as required when original plans are in-



LONGEST BRIDGE on the Erie is the Moodna Creek viaduct near Salisbury Mills, N. Y. The structure is 3,200 ft long and extends 196 ft above ground. The highest bridge on the road is the 300 ft Kinzua viaduct.

complete. Repairs and strengthening are done by both riveting and welding, depending on which method proves most feasible and economical.

All steel for both repairs and strengthening is fabricated at the road's steel fabricating shop at Port Jervis, N. Y., by a steel force consisting of a foreman, assistant foreman and 10 to 12 steelmen and helpers. The yard is equipped with a large punch, shear, power saw, bending press, threading machine, air compressors, welding machines and a full complement of pneumatic tools. Stationary and mobile-crane hoists are used for handling material during fabrication and loading for shipment.

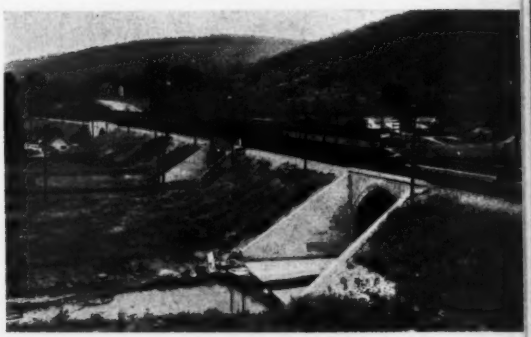
Approximate Number and Types of Bridge Structures*

Erie Railroad System

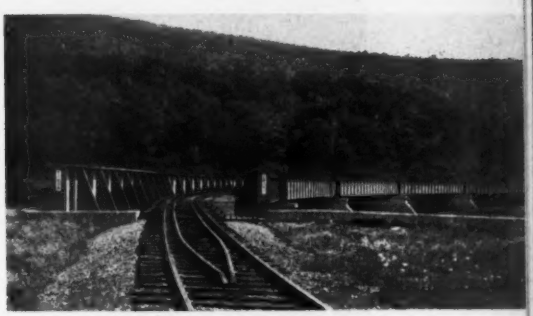
Type	Foreign**	Erie	Total
Viaducts	0	16	16
Through truss	0	49	49
Deck truss	0	2	2
Through plate girder	12	346	358
Deck plate girder and deck girder beam	11	339	350
Combination (Multiple spans of various types)	4	69	73
Reinforced steel and concrete	1	32	33
Movable bridges (drawbridges and liftbridges)	0	6	6
Timber trestles and wooden stringer spans	6	69	75
I-beam spans	2	40	42
Concrete beam and rail spans (flat tops)	29	630	659
Arches	13	512	525
Pipe culverts	73	1733	1806
Box culverts	11	1417	1428
Combination pipe, box, arch culverts, etc.	0	301	301
Miscellaneous openings on right-of-way	33	216	249
Tunnels	1	2	3
Signal bridges	3	49	52
Overhead bridges of other railroads	57	2	59
Overhead highway bridges	82	231	313
Miscellaneous overhead pipe carriers, footbridges, etc.	31	14	45
Totals	369	6075	6444

* Over 2'0" in horizontal clear span ** Indicates structures not maintained by Erie

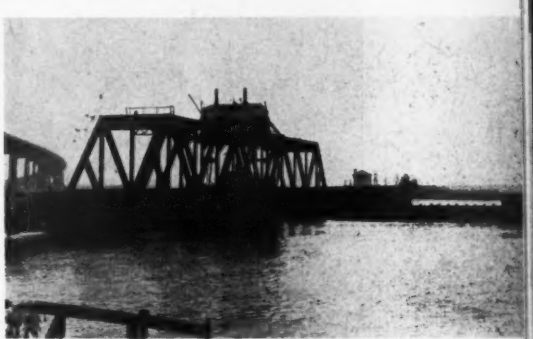
Some Other Types of Bridge Structures . . .



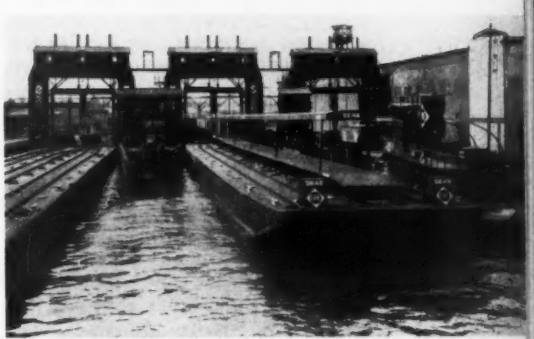
THREE TYPES of construction are illustrated by these bridges at Corning, N. Y.



OFFSET through-girder bridge near Corning is an unusual design.

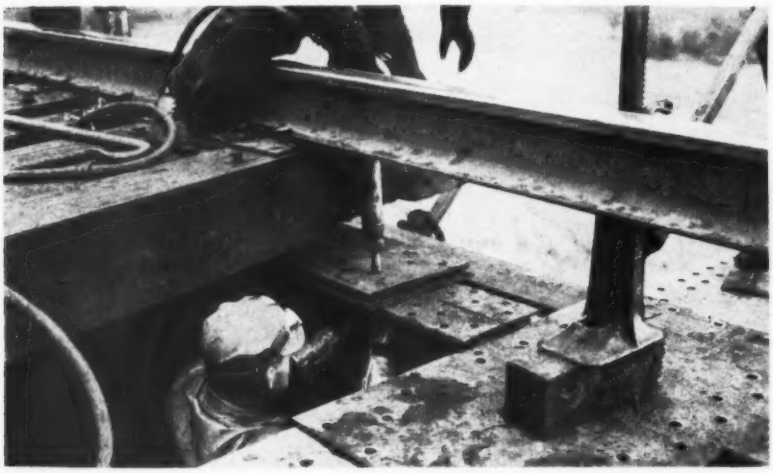


SWING SPAN across navigable stream near Jersey City, N. J.



TRANSFER bridge used for loading cars onto barges at Jersey City.

With the Road's System Bridge Gangs . . .



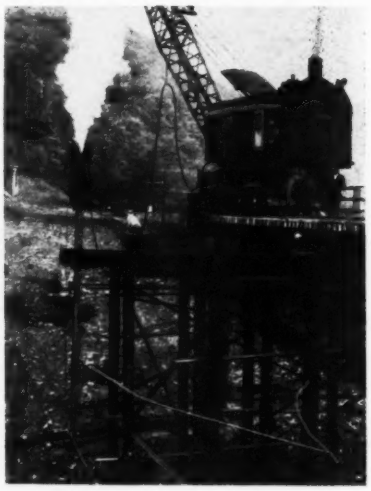
STRENGTHENING of original steel bridges has been a major task of road's steel bridge gangs over the years. New cover plates are being installed here.

PAINTING of bridges is a duty of division maintenance forces. Here, Texaco No. 45 oil-base spray is being applied to through-girder structures.

Erection of steel in the field is handled by four system gangs. These gangs live in modern camp cars with bunk and recreation facilities, toilets and showers, and kitchen and dining units. Each gang consists of a foreman, assistant foreman, camp maintainer and 8 to 10 steelmen and helpers. In addition to a 50-ton erection crane and smaller diesel cranes used in handling material on larger jobs, the crews are fully equipped with air compressors, welding machines, burning outfits and an assortment of pneumatic tools. Each gang is furnished with a 1½- to 2-ton truck for hauling men and materials to and from their bunk cars and the work site, where practical. The gangs are also provided with motor cars and push cars.

The steel bridge gangs, in addition to their repair and strengthening work, handle erection of new bridges, both truss and girder, and the driving of steel-bearing piles. New bridge structures, where they are not too large (usually not exceeding 50-ft. spans), are fabricated in the road's Port Jervis shop, using steel salvaged from bridge retirements and adding new steel as necessary. Larger structures are usually fabricated by outside parties and shipped directly to the site for placing by Erie forces.

Repair and maintenance of other than steelwork on bridge structures are handled by the master carpenters' forces on respective divisions. These gangs are equipped with dump trucks, concrete mixers, air compressors and portable electric



ERECTION CRANE, shown here driving steel H-piles during recent flood reconstruction, is used extensively in repair and replacement of bridges.

generating plants, together with an assortment of pneumatic and electric tools and paint-spraying equipment.

Wooden decks for all bridges are framed in the road's system carpenter shop at Meadville, Pa. When a deck is to be renewed, engineers make up a framing plan for the entire structure, giving all details with regard to each piece of timber for the deck. When the timber is delivered to the bridge, every piece is numbered, and is completely finished, including boring and adzing, and ready to install. The master carpenters' forces merely place the timber at its specified location and attach the fastenings.

The division forces also do all painting of bridge structures, except where the painting is being done in conjunction with repairs to steel. As of this year, the Erie has adopted No. 45 and No. 55 oil-base spray for painting its bridges. Officers report that they are realizing savings of better than 65 per cent in labor and material using the Texaco formula. Two applications are made, the first using the No. 45 mixture, which reportedly removes corrosion and scale effectively without extensive scraping. The second application is made with the No. 55 formula about a year later, after the first application has removed rust and scale. The latter is of heavier consistency and when dry forms a hard protective coating over the metal, which is said to prevent corrosion for years.

SPECIAL REPORT

ERIE

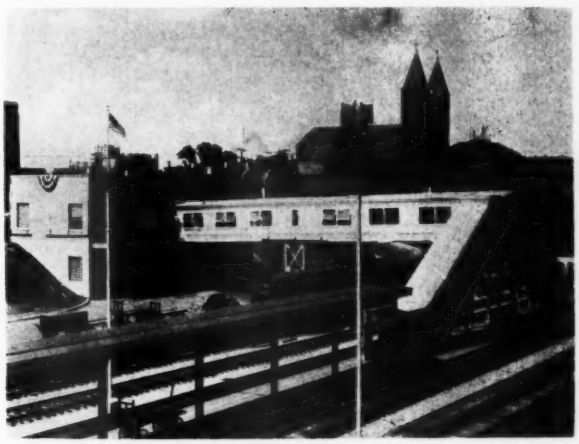
BUILDINGS

LARGE STATIONS:

New passenger terminal at Akron, Ohio, is an example of Erie's progressive attitude towards improvement of station facilities. Built in 1948, the structure is of steel, brick and concrete with stone facing on street side. In front is a spacious parking area.

Buildings Reflect "Forward" Look

Construction of new passenger stations, freighthouses, diesel shops and auxiliary facilities, and the modernization of existing ones, has been one of the Erie's major programs during the past 10 years. Regrouping and conversion of shop installations in connection with the switch to dieselization has also had an important place in the road's building program.



TRACK SIDE of Akron station provides enclosed overhead concourse and moving stairway serving canopied platform.

● The general appearance and condition of Erie buildings is a tribute not only to high standards of design, construction and maintenance, but also to the road's attitude towards its employees and the communities it serves.

Even in the smallest communities one finds well-kept properties. Stations, although they may be old, show evidence of good maintenance and recent modernization. Shop buildings and grounds have likewise been modernized and appear well cared for.

Since 1944 the road has built several new passenger stations, designed for the convenience and comfort of the traveling public. Included in the new construction are stations at Ashland, Ohio, Akron, Cleveland (Lee Road station), Hawthorne, N. J., Patterson, Corning, N. Y., and Bloomfield, N. J. Each of the new stations was individually designed to fit in with the conditions and requirements of its location; however, general construction features and materials are similar, as outlined elsewhere on these pages.

In addition to its new construction, the Erie has done an outstanding job of remodeling and otherwise modernizing existing station facilities where the older structures were in good basic condition. This work has been done on a program basis with several stations being remodeled each year. New interiors, employing similar materials and techniques used in new construction, have been installed, while exteriors have been repaired and reconditioned to make them attractive.

Shop Facilities Revamped

The advent of diesel power on the Erie, as on most other roads, required a large-scale revamping of the road's mechanical-shop facilities. Shops were regrouped and consolidated to accommodate the "revolution" in motive power. Where practical, the Erie converted steam-locomotive shops for the servicing and repair of diesels. Several new shops and additions to existing ones were also required at the various terminals.

The road's two major diesel-repair shops are located at Marion, Ohio, and Hornell, N. Y. At Marion an all-new shop, providing facilities for servicing, heavy repair and overhaul of units, was erected. At Hornell, similar facilities were provided by conversion of a portion of the old steam-locomotive repair shop since the building

SMALL STATIONS: New facilities at the Lee Road station, Cleveland, are typical of numerous small stations built since war. Interior (below) combines modern materials, lighting and furnishings into an attractive comfortable atmosphere.

NOW—Station at Passaic, N. J., is modern and attractive in appearance following a modernization project.

BEFORE—This is how the Passaic station looked before the improvements were made. Note frame construction.

Features of New Stations

WALLS—Brick or concrete block with brick veneer.

ROOFS—Flat or hip-and-ridge depending on size of building and architectural treatment. Flat roofs employ precast concrete slabs or steel decks with vermiculite concrete for insulation and built-up tar-and-gravel roofing. Hip-and-ridge roofs are of wood with asphalt shingles.

FLOORS—Concrete with a sub-floor of vermiculite concrete for insulation where there is no basement. Floors in waiting rooms and offices are finished with vinyl or plastic-asbestos tile. Restroom floors are covered with plastic-magnesia flooring.

INTERIOR FINISH—Walls are finished with Carrara glass, ceramic facing tile or plaster in attractive colors. Ceilings are of acoustical tile.

WINDOWS—Architectural-projected aluminum sash.

LIGHTING—Fluorescent throughout.

HEATING—Forced-circulation hot-water systems with either wall vectors or radiant-floor piping. Boilers are either oil or gas fired.

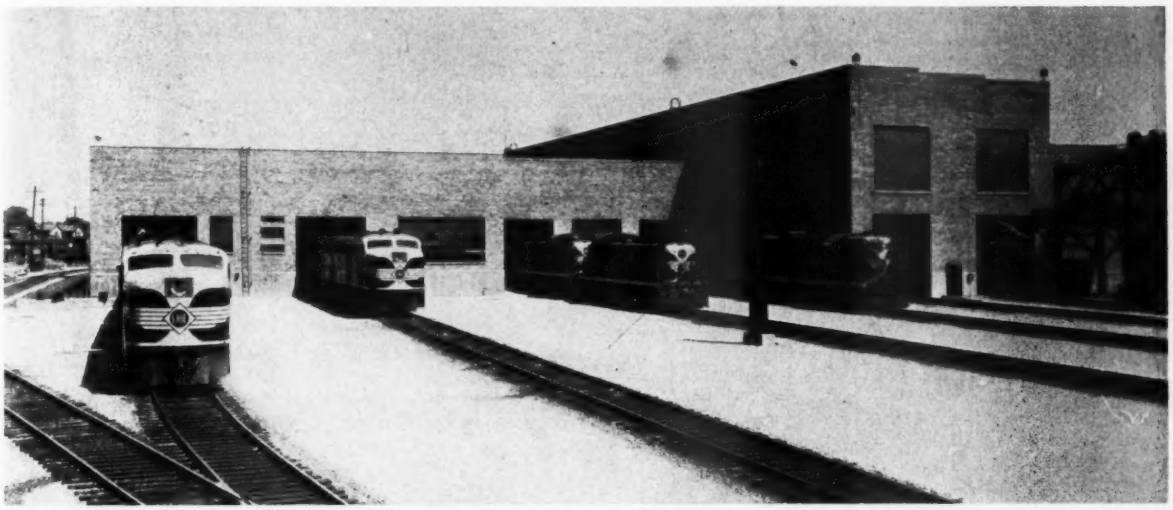
FURNISHINGS—Waiting and rest rooms are furnished with individual upholstered chairs and sofas.

was adaptable to the straight-through operation desired for diesel servicing. Drop tables and 30-ton traveling cranes are provided in both of these shops, as well as in new shops at Jersey City and Cleveland.

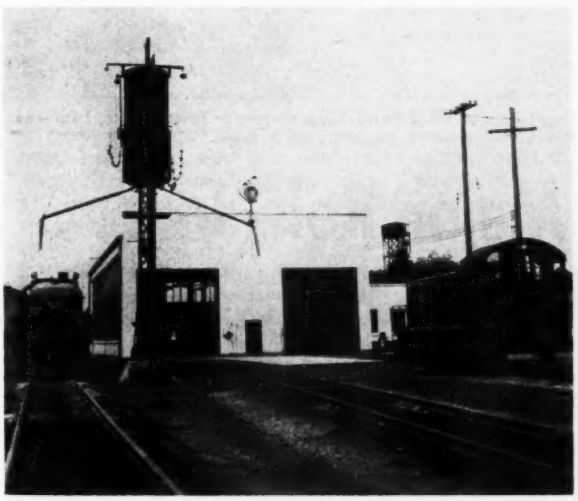
Besides the construction of diesel shops, many other new buildings have been erected and existing structures remodeled at the major terminals. These include wheel shops, car shops, offices and numerous welfare buildings for use of terminal and train-service employees.

Modern fueling facilities are provided at all terminals for switchers, road switchers and emergency fueling of road engines. These include storage tanks, unloading facilities, fueling hydrants and pumping equipment. The latter are either complete pumping stations or compact Serv-A-Train units at smaller installations. In addition, major fuel-oil storage and refueling facilities are provided at Susquehanna, Pa., Hornel, Marion and Huntington, Ind.

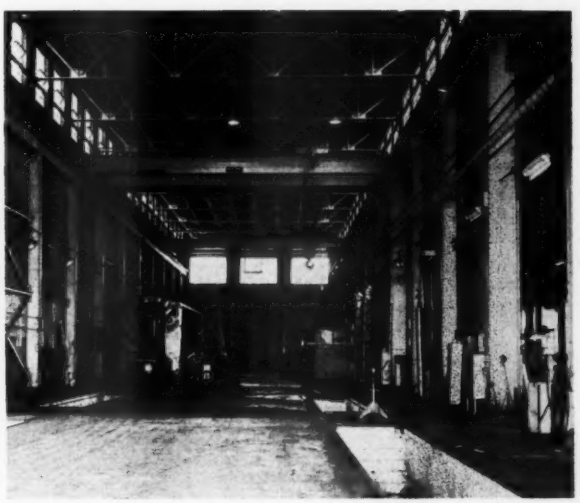
STEEL BUILDINGS, like this Armco S-2 yard office at Ford plant near Suffern, N. J., are utilized by Erie for variety of purposes, including stations, shops, toolhouses, etc.



LARGE DIESEL SHOPS: All-new facility for servicing, repair and overhaul of road's diesel fleet in western territory was built at Marion, Ohio, in 1944 and further expanded in 1953. Heavy repair section (below) shows typical structural steel, brick and concrete construction with 30-ton overhead travelling crane and combination of fluorescent and mercury-vapor lights. Heating is furnished by unit heaters with steam coming from central power plant. Floors are of reinforced concrete treated with a hardener.



SMALL SHOPS: Typical of new diesel servicing and light repair shops at major terminals is this installation at Meadville, Pa. Construction is similar to larger shops, except in scope.



Construction Highlights of Erie's New Diesel Shops

WALLS—Steel frame construction with brick and concrete-block curtain walls. Walls have large areas of glass block and corrugated wire glass with projected sash for ventilation.

ROOFS—Steel beams supporting precast concrete slabs or steel decks with vermiculite concrete for insulation and built-up tar-and-gravel roofing.

FLOORS—Concrete with metallic hardener. Toilet and locker rooms have a sub-floor of vermiculite concrete for insulation.

INTERIOR FINISH—Walls painted with soft colors in shop areas. Toilet and locker rooms are finished with ceramic tile, while offices are plastered and have acoustical ceilings.

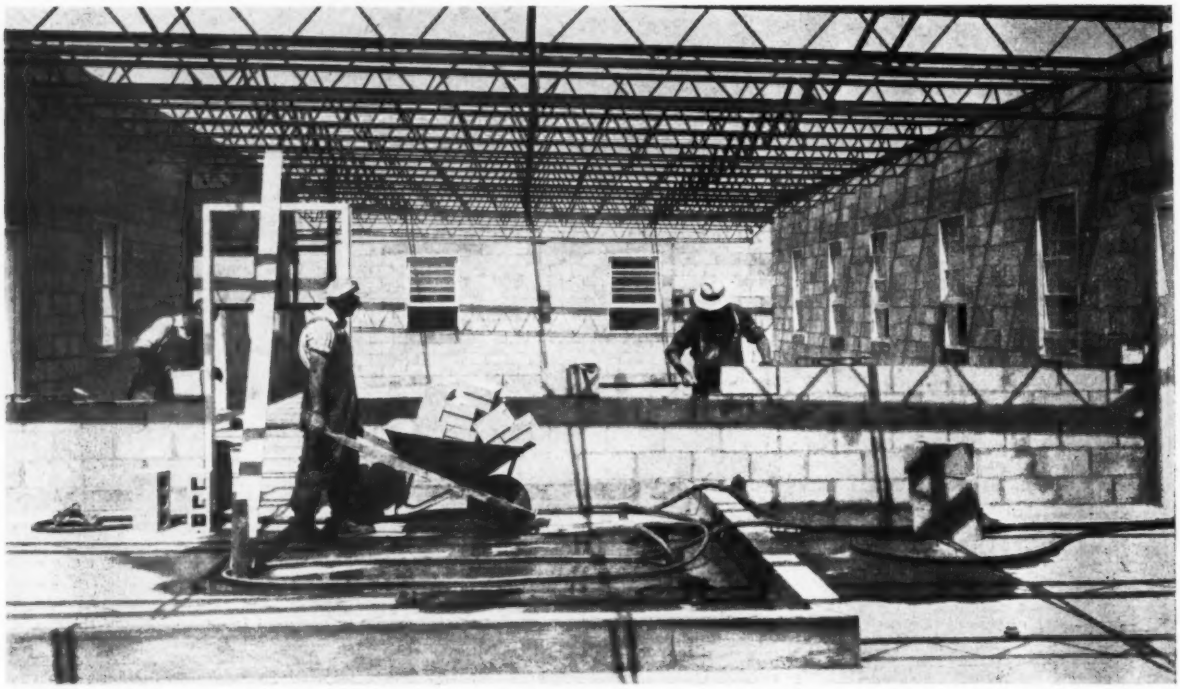
SERVICING PLATFORMS—Steel-frame construction supporting steel-grate floor filled with concrete.

PITS—Reinforced concrete.

LIGHTING—Fluorescent fixtures in shop areas with low ceilings and along platforms. Both mercury-vapor and high-bay-type fluorescent fixtures are used in areas with high ceilings. Pits are lighted by recessed incandescent units.

HEATING—Unit heaters along walls in various shop areas and service pits. Steam is supplied from central boiler house at each terminal.

VENTILATION—Foundry-type power ventilators in roofs for exhausting fumes. Hoods are used over tracks.



CONSTRUCTION of new car-repair shop at Salamanca, N. Y., is typical of the many smaller projects handled by company forces. Structure was built by division carpenter forces, except for roof trusses which were placed by steel gang.

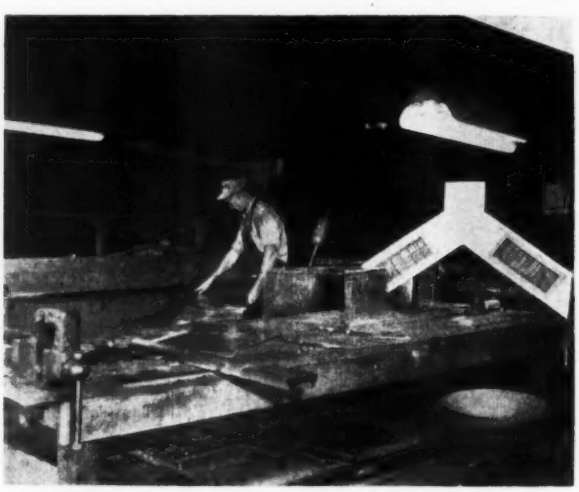
Division Gangs Play Major Role In . . .

- **Building Maintenance and Repairs**
- **Station and Shop Modernization**
- **Maintaining Service, Sewerage Lines**
- **Erection of Smaller Structures**

● In addition to their task of maintaining bridge structures as outlined previously, the division master carpenters' forces are an important part of the Erie's setup for maintaining other structures.

They are responsible for all general repair work to buildings and related structures, except for steel

DUMP TRUCKS are used extensively by division gangs for hauling bulk materials, equipment and heavy timbers.



SHEETMETAL shops at division headquarters make a variety of metal products for new construction and repair jobs.

Programming of Bridge & Structures Work

Bridge and structures work is programmed on the Erie in much the same manner as track maintenance.

The division master carpenter makes inspections of the various bridges, buildings and other structures falling under his supervision throughout the year in the course of his regular duties. His work is supplemented by inspectors from the department of structures who make inspections of all structural steelwork and masonry at least once yearly.

During the latter part of July, the master carpenter and division engineer on each division make a joint inspection of all facilities under their jurisdiction, and draw up a tentative division B & S program based on their findings. About the same time the engineer structures outlines his program for repairs and renewal of steelwork based on recommendations of his inspectors.

In September an inspection team, comprising system, district and division representatives of the maintenance department and a representative from the department of structures, covers the entire system by motor car. This group makes a general inspection of all structures listed in the tentative programs set up by division engineers and the engineer structures.

The recommendations in the tentative programs are taken item for item and altered, deferred or approved as desired by the inspection team. The program as approved is then forwarded to the general office for inclusion in the following year's budget. Where A & B work is to be done, it is included in an annual improvement budget which is handled separately from the regular MW&S budget.

Programs are outlined in detail for each individual job, giving the mile number and station location, name and description of structure, proposed work and material required and estimated cost of work. The latter is broken down into labor and material costs.

components, on the respective divisions. The gangs also take care of practically all painting, remodeling, modernization and retirement of stations, shops, etc., and installation and maintenance of air, steam, water, fuel and sewerage lines. Furthermore, the division crews erect miscellaneous smaller new buildings and structures which are not handled by contract.

A typical division force, under the jurisdiction of a master carpenter, consists of two types of gangs, carpenter crews and plumber crews. Although classified as carpenters, the former are considered pretty much "Jacks of all trades."

Around the rail-water terminals in the New York area and at Cleveland, the carpenter crews maintain the road's waterfront facilities, including piers, ferry slips, transfer bridges and warehouses.

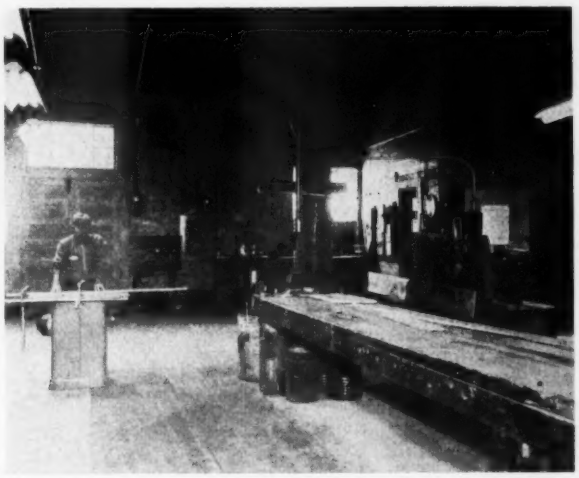
A typical division carpenter force comprises one large "floating" gang with a foreman, lead carpenter, four carpenters, four helpers and a cook, housed in bunk cars; one small "floating" gang with a leader, two carpenters and two helpers, also housed in bunk cars; and permanently headquartered gangs as necessary, each with a foreman, two leaders, four to six carpenters and four helpers.

A typical plumbing gang consists of one foreman, one lead plumber, three plumbers and two helpers. The plumbing gangs are headquartered permanently, working their outlying territories by truck. However, the gangs also have bunk cars for use when engaged on larger projects where it is impractical to drive back and forth from their headquarters. Besides the general run of plumbing work, the plumber gangs take care of mail cranes, gutters and downspouts on buildings and sheet-metal work such as heating and ventilating ducts, etc.

The carpenter crews are also equipped with trucks, both dump and stake body, for use in transporting materials, men and equipment to the job. In addition to the portable equipment mentioned previously in the bridge section, the carpenter forces have woodworking shops at their headquarters. The shops are outfitted with power tools for performing about any kind of woodworking job.

Plumber gangs, too, are supplied with a variety of power tools to assist them in carrying out their duties. Their shops are outfitted with power pipe-cutting and threading machines, machines for rotating cables used to clean out sewers, and a variety of small power hand tools. Moreover, plumber shops have a complete set of tinsmith's tools and equipment for use in fabricating sheet-metal products.

PLUMBER shops on each division are being furnished with power equipment like this pipe cutter and threader.



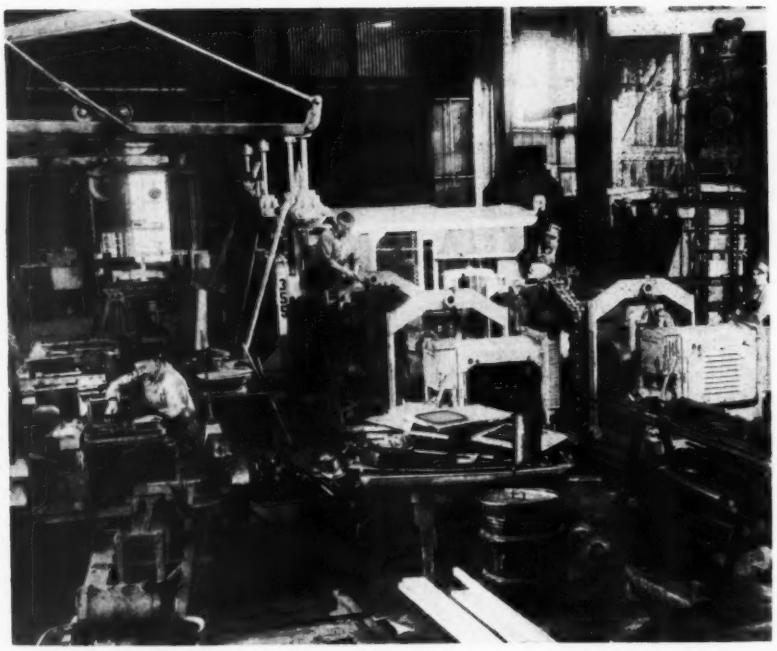
CARPENTER shops are utilized by division gangs for smaller woodwork jobs not handled by system shop.

Centralized shops at Meadville, Pa., include facilities for repair and overhaul of work equipment, motor cars and trucks. Frog and switch reconditioning, carpenter shop, signal shop and reclamation plant are also located at that point.

SPECIAL REPORT

ERIE

M/W SHOPS



WORK EQUIPMENT shop at Meadville, Pa., where machines are overhauled for entire system, is the scene of great activity during winter months.

Behind the Scenes . . .

. . . System M/W Shops Keep 'Em Going

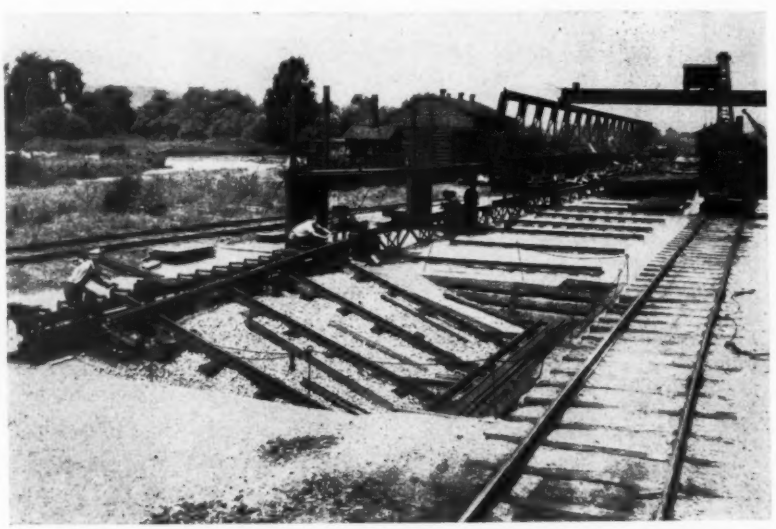
● For maintaining its ever-increasing fleet of machines and motor vehicles, and to keep pace with the demand for company-made and reconditioned materials, the Erie has centralized most of its M/W shop activities at the Meadville, Pa., terminal.

At that point, buildings formerly used by the mechanical department have been converted into a group of shops for servicing, repair and overhaul of work equipment, trucks and automobiles, and motor cars from all over the system. In other buildings are the system frog and switch repair shop, system signal shop and system carpenter shop. The road's reclamation plant, where materials are reconditioned, is located in an area nearby.

Work Equipment Shop

Heavy repair and overhaul of work equipment and motor vehicles is organized as much as possible on a production line basis at Meadville. There are individual areas in the shop buildings assigned specifically for reconditioning of each of the various types of equipment. In one section large on-track equipment is handled, in another motor cars, in a third trucks and automobiles, in another large off-track machines such as bulldozers, and in still another miscellaneous small power tools, air compressors, portable generators and unit tamping tools. In addition, special facilities are provided within the various sections for overhauling engines, both gasoline and diesel, and for the repair of electrical equipment.

Repair and servicing of equipment at Meadville is carried on the year around; however, by far the



RAIL CROPPING layout at reclamation plant reconditions joint-battered rails for the whole railroad. Rail ends are cut off by oxyacetylene process.

largest volume of work takes place during the winter months, while the equipment is idle because of weather. Only a skeleton force of mechanics works at the shop during the summer months, the remaining personnel being assigned as traveling mechanics to service equipment in the field all over the system. During the winter months the setup is reversed with a skeleton force of mechanics handling work in the field, and the main force working in the Meadville shops.

To supplement the system shops, the Erie has small repair facilities at its major terminals. Light running and emergency repairs are made at these points.

Frog and Switch Repair

All switch material released from rail-laying jobs is shipped in to the system frog and switch repair shop at Meadville for reconditioning. Where frogs and switch points are salvageable they are built up, power ground, and damaged parts replaced or repaired to restore them to a satisfactory condition. Plates, rods, bolts, etc., are cleaned up using a steam cleaner and a special solution. After reconditioning, the switch points, frogs and other material are stockpiled in neat order according to their classification.

Besides reconditioning frog and switch material, the shop makes railroad crossings, using short pieces of rail salvaged from rail-laying jobs. Tamping tools used on the various power tampers are also built-up and repaired.

Reclamation Plant

The Erie's reclamation plant, in addition to reconditioning parts and handling scrap metals for all departments, takes care of rail cropping for the MW department.

Rail to be cropped is sent to the plant from all over the system. There it is unloaded one car at a time onto a rack adjacent to the rail-cropping line.

The cropping operations are all out of doors, with lean-to shelters over the various machines along the production line. A track, elevated about 3 ft. off the ground and equipped with rollers, carries rails as they pass down the line.

First in the line-up of operations is the cutting off of rail ends. This is done with a two-torch outfit. One torch is located above the rail, the other below. In cutting off a rail end, two passes are made with the cutting rig. With the first pass, the top torch is used to cut through the rail head and about half way down through the web. With the second pass, the lower torch cuts through the base and lower half of the web.

In the following sequence of operations, the rail ends are power ground, and new holes drilled by two triple-bit machines. After drilling, the reconditioned rails are dumped into a pit from which they are reloaded by the locomotive crane back into the same car in which they arrived.

By handling only one car of rail at a time and loading the rail back into the same car, plant personnel avoid confusion over where the rail came from and where it is to be shipped. With this setup, the car number can be utilized by all parties concerned in tracing rail from the time it was loaded at its origin, through the reclamation plant and until it is delivered to the new location for relaying.

System Carpenter Shop

All major carpenter work, making of pre-cast concrete products and sign painting for the Erie system is handled by the carpenter shop at Meadville.

As mentioned previously in the bridge section, all bridge timbers are framed in this shop. The system shop also frames filler and flangeway planks for road crossings. Other carpenter work handled by the shop includes making window and door sash, screens, cabinets, etc., for stations and other buildings; engineer stakes; bumping blocks; arms for crossing gates; wayside telephone boxes; and crossing signs.

In the concrete-products section shop forces make precast concrete whistle posts, mile posts, clearance posts, concrete benches for use at stations and bases for wayside telephone boxes.

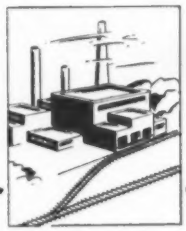
The shop is manned by a force of 15 men, comprising one foreman, one lead carpenter, seven carpenters, five helpers and one painter. They are equipped with various types of woodworking machines for handling everything from large bridge timbers to the smallest window or door molding. Other equipment includes concrete mixers and portable and stationary hoists for handling heavier materials.

The Signal Shop

The signal shop comprises an area 54 by 142 ft., all on ground floor level. It is well arranged and well lighted. This shop is located adjacent to the storeroom area, and the stores department handles all the ingoing and outgoing materials and all work performed in the shop, although under the supervision of the signal department, is done under shop orders issued by the storekeeper.

General repairs are made in the main shop area and consist principally of all the items used by the signal department, including signal mechanisms, switch machines, both electric and pneumatic, signal masts and the regrinding of track bond drills. Relays, CTC apparatus and like equipment are repaired and adjusted in an enclosed area.

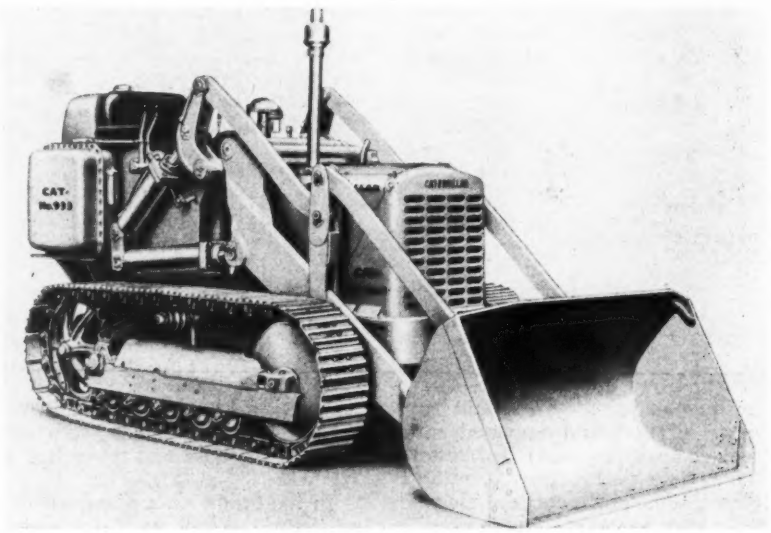
RECONDITIONING of frogs and switch points by welding and grinding is handled at Meadville shop for the entire system.



PRODUCTS OF MANUFACTURERS . . .

. . . new, improved equipment, materials, devices

TRACTOR SHOVEL



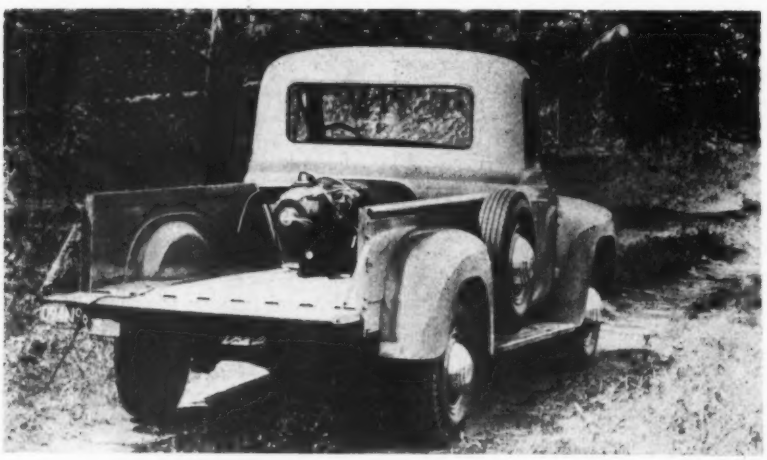
A NEW TRAXCAVATOR with a 1-cu yd bucket is the third in a line of integral tractor shovels offered by the Caterpillar Tractor Company, Peoria, Ill. Known as the No. 933 Traxcavator the new unit includes a 40-deg bucket tiltback at ground level and an oil flywheel clutch.

It is said to have an excellent horsepower-to-weight ratio and includes an advance hydraulic system, large lifting capacity, good balance and stability, and fast response to controls, together with operator convenience and visibility.

The five-roller track frame is of box section with 54-in gage. The track chain is of 37 sections and uses 12-in, 3-bar grouser track shoes. A large diameter fabricated disc-type idler and a 45-gal fuel tank are standard equipment. The operator's seat has been set 10% in higher than usual to improve visibility. Bucket-lift and tilt controls are spaced within hand span for convenience in operation.

A vane-type hydraulic pump, driven from the front of the engine, is reported to have ample capacity to permit simultaneous operation of bucket controls without loss of speed or power. The control valves are mounted inside the sealed hydraulic reservoir system which is located on the left fender. In-seat starting is available, which employs either a gasoline starting system equipped with 6-volt electric starting or a 24-volt direct electric starting system.

Model No. 933 has reverse speeds up to 264 fpm in reverse and four forward speeds up to 528 fpm.



PORTABLE GENERATOR

AN ELECTRIC GENERATOR, which can be mounted in an International truck and which is operated by a power takeoff from the truck's engine, has been announced by International Harvester Company, Chicago. This generator, known as the Electrall, has an output of 12,500 watts at 60 cycles, which is said to be sufficient to supply power to any electrical equipment which can normally operate from a 5-kva high-line transformer, and will handle up to a 10-hp electric motor depending on its application. The generator features a plug-in outlet and supplies alternating current of either 110 or 220 volts single phase and 220 volts three phase.

The Electrall is factory-installed optional equipment on International series R-110, R-120 and R-130 pick-up trucks and is available for installation on larger models. It is mounted in the truck bed, directly behind the cab, and is belt-driven from an independent power-takeoff geared to the transmission. The belt tension is adjustable. The controls—power-takeoff knob to engage or disengage the unit and throttle control to obtain the desired rpm up to 3600—are located on the instrument panel of the truck. Current generated is

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13

Much stress has been given in advertising to the various types of weed killers and brush killers for railroad use.

The importance of the equipments, however, for applying these chemicals to the ballast or right-of-way has been lost sight of, to a very large degree.

It has definitely been proved that a modern properly engineered and versatile equipment is directly responsible for a "GOOD KILL" and a "SAVING OF CHEMICAL PER MILE."

We are proud of our 13 worktrain Spray Equipments because they are largely responsible for the good results secured with our chemicals. We are also proud of the fact that many railroads have complimented us on the superiority of our equipments.

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In the Long Run !

ENDURANCE AND STAYING POWER

WINS!

TO WIN IN THE LONG RUN the runner must have strength, staying power and endurance. So it is with the IMPROVED FAIR ANCHOR—it is strong, it has staying power as it remains tight, it has endurance as it outlasts the life of the rail, and proves that it is the winner IN THE LONG RUN.

THE P. & M. CO.

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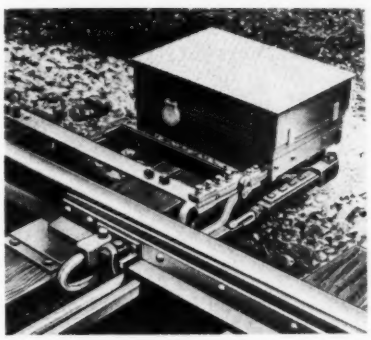
turned on or off by a switch located on the control panel. The generator weighs 325 lb and occupies an area 22-in long, 20-in wide and 20-in high. When not in use the unit can be readily removed from the truck.

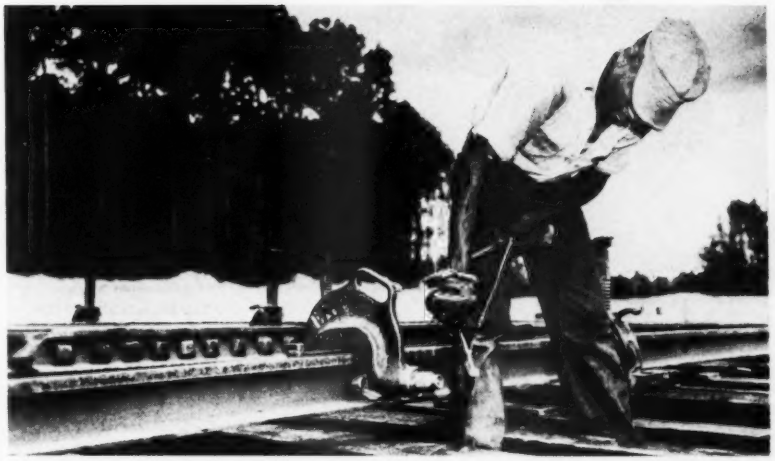


SWITCH MACHINE IS COMPACT

THE railroad division of the Federal Telephone & Radio Co., a division of the International Telephone & Telegraph Corp., Clifton, N. J., has announced the FTR Model 55 switch machine for use in yards and terminals. It weighs only 264 lb and is reported to have several advantages. These include a trailable switch; the mechanical locking of the joints to the stock rail; installation, without modification or special ties, on either the right or left-hand side; and small size permitting placement lengthwise to the switch in areas of minimum clearance.

The manufacturer also states that the machine is simple to maintain as all mechanical parts are readily accessible.

The machine is available for all rail sections and is supplied for either ac or dc operation.

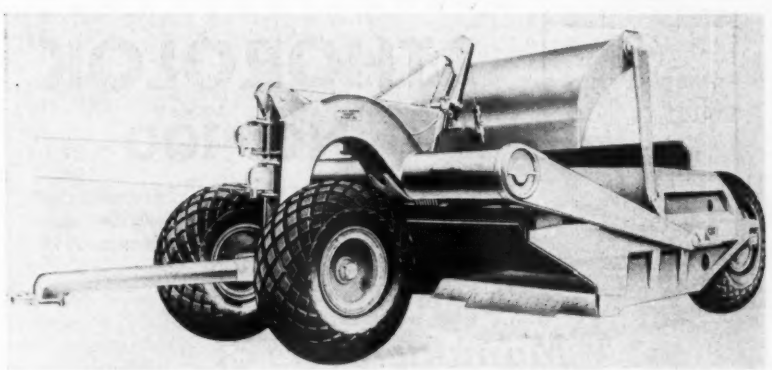


CARTRIDGE actuating the rail punch is discharged by tapping the firing pin with a special hammer.

POWER RAIL PUNCH

THE LINE of Velocity-Power tools, which includes a powder-actuated rail punch, is being made available to the railroad field by the Maintenance Equipment Company, Chicago. The punch will make holes in the webs of rails for track bolts or rail bonds. It employs the principle of a cartridge-actuated plunger to push a punching unit through the rail. It is claimed that the holes so formed are free of burrs or other imperfections on either side, that they require no reaming or filing and have practically no taper, and that they are immediately ready for application of track bolts or rail bonds.

The use of properly sized punching units, it is said, will form precisely sized holes up to 1¼ in. in diameter through the webs of rails weighing up to 112 lb. The frame of the punch is composed of a simple steel casting while all other parts of the tool are of corrosion-resistant alloy steel. The overall weight of the unit is 70 lb.



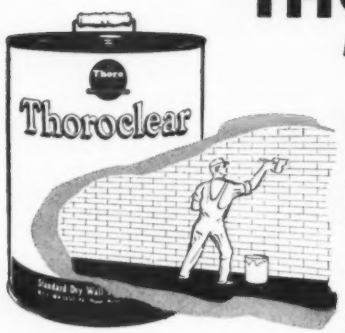
CABLE-OPERATED SCRAPER

A CRAWLER-DRAWN, cable-operated scraper featuring a "Low-bowl" design has been announced by the Caterpillar Tractor Company, Peoria, Ill. Known as the No 463 scraper the new unit has a struck capacity of 18 cu yd and a heaped capacity of 25 cu yd. This machine has been designed with a longer and wider bowl with lower sides, a feature which is reported to reduce internal friction during the loading operation because incoming material has to overcome less overhead weight which in turn reduces loading resistance. Positive dozer-type ejection has also been provided, which is reported to assure complete bowl emptying.

Adjustable ejector-guide rollers, protected cables and straddle-mounted rear wheels with adjustable axle height are among the features of this new scraper. It is reported that the adjustable axle height will permit leveling of the cutting edge when the rear tires are of different diameter. The cutting edge is reversible and is "Hi-Electro" hardened. Pusher contact is said to be improved by the use of a large push block. The new scraper has a load capacity of 55,000 lb; an overall length of 38 ft; a width of 11 ft 9 in; a height with the blade on the ground of 11 ft 1½ in; and a wheelbase measurement of 23 ft 1½ in.

The THORO System of Masonry Protection

THOROCLEAR



Invisible Water Repellent

Ask your dealer about this powerful silicone water repellent developed by years of research by General Electric Company and now produced by us for your protection. *Ask for Circulars No. 30 and 31.*

No change in color or texture of brick, limestone, sandstone, tile or stucco surfaces. Applied by brush or spray.

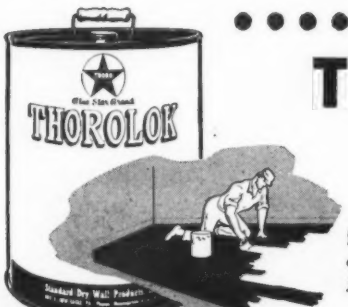
Keep water out of your masonry walls and protect interior plaster, paints and expensive furnishings.

THORITE

20 Minute Set Patching Compound

Repair those broken sills, steps, concrete floors, chimneys and other defective masonry! *Ask for circular No. 20.*

THOROLOK NO. 100



Use it for your basement or factory floors. New, with special alkali resistant pigments. *Ask for Color Card 32-C.*

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GET OUR PICTORIALLY DESCRIBED LITERATURE "HOW TO DO IT"

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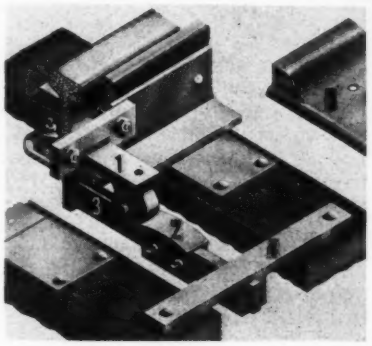


ROLLER FOR USE AT SWITCH POINTS

A PAIR of rollers, each operating on its curved cam block, has been developed to lift switch points off of the slide plates when being thrown from one position to the other. This device is being offered by the Railroad Materials Corporation, New York. The manufacturer states that, with these rollers in service, the power to operate a switch is reduced 40 per cent while moving up to the top-center position of the roller on the cam block, and 100 per cent to complete the movement. Thus, the device is recommended especially for use on power-operated switches and spring switches. A further claim of the manufacturer is that less lubricant, or perhaps none, will be required on the slide plates.

The illustration shows the cover removed from a roller as applied to one point. A similar roller is applied in like manner to the other point. The roller, including a roller bearing, is mounted on a pin in the roller bracket (1) which is attached to the switch point by two ⅞-in bolts that go through holes from which two rivets were removed, about 30 in from the point. The cam block (2) which has a curved top surface, is then placed on the guide bar (3). The right end of this guide bar is supported by a ⅞-in bolt through the holes in the two lugs on the bottom of the guide-bar support (4), the ends of which lie on the tops of the two crossties. The left end of the guide bar hooks over the base of the far side of the stock rail, and is held by a set screw.

The cam block is slid along the guide bar to the proper place with respect to the roller. Then the two set screws are tightened to hold the cam in place. The cover (5) is applied by a ½-in cap screw into the top of the roller bracket.

TRANSPARENT MODEL SHOWS WHY

New BULLDOG Rail Anchor has 25% greater holding power

This transparent plastic model shows why True Temper's new BULLDOG rail anchor has 25% greater holding power than our previous anchor, which itself was noted for high anticreep properties.

The new BULLDOG anchor has a powerful two-way grip. The anchor spring is under high tension and it *pulls* the clamp against the rail, like hand at left above.

That's also how our previous anchor gripped. But in the new BULLDOG the anchor spring is also under heavy *compression*. It pushes upward so that the rail base is squeezed between spring and clamp. Thumb and forefingers, above, illustrate this action.

To put the anchor spring under compression—and raise holding power—we forged new lugs into the anchor clamp. Pencil above points to lug.

Ideal for Welded Rail

With its powerful two-way grip, the new BULLDOG will retain its holding power through years of service and on reapplication—even better than its predecessor. It's the ideal anchor for all applications and especially where high anticreeping properties are required, as on welded rail.

The BULLDOG anchor is applied as one unit by one man using any striking tool. It fits new or worn rail. The world's easiest anchor to apply.

Write for free copies of our new brochure and also our handy application chart. True Temper Corp., Railway Appliance Div., 1623 Euclid Avenue, Cleveland 15, Ohio.

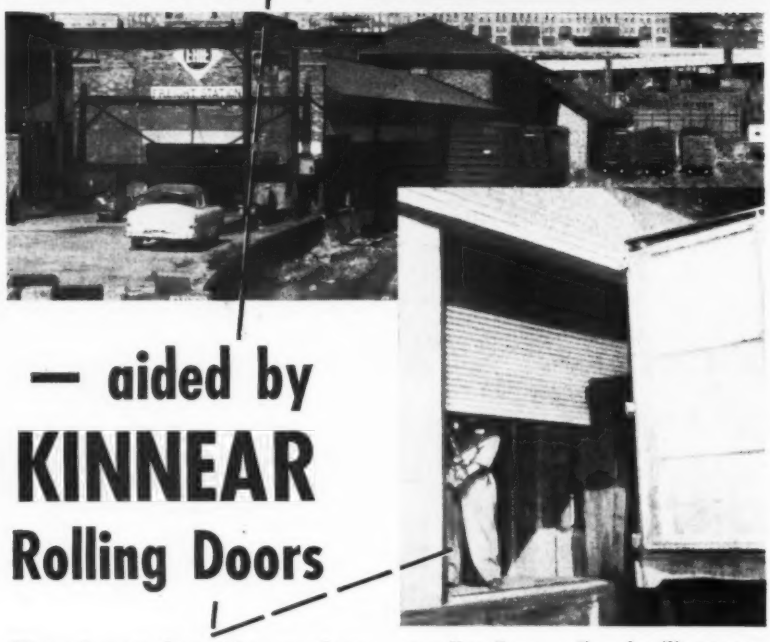
BULLDOG Shovels, Scythes, Forks and other

TRUE TEMPER RAILWAY TOOLS

TRUE TEMPER® BULLDOG RAIL ANCHOR

25% greater holding power . . . one unit . . . applied by one man . . . using any striking tool

Another sign of freight-handling efficiency —



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KINNEAR Rolling Doors

Through more than 100 years of service, the Erie Railroad has kept pace with modern needs for quick, safe, low-cost freight-handling.

That's why, for many years, we've been glad to count the Erie among the many famous users of Kinnear Steel Rolling Doors.

Wherever goods, equipment, or rolling stock must be moved in and out of buildings – in any industrial or commercial activity – Kinnear Rolling Doors offer major advantages.

Opening straight upward, they coil *completely out of the way,* safe from damage. Whether opened, closed or in action, they permit full use of all surrounding floor, wall and ceiling space. Their rugged, all metal, heavily galvanized * construction stands up under long, hard use, through toughest weather conditions. Built any size, with manual or electric control, they are easily installed in old or new buildings of any type or construction.

Like the Erie, a majority of America's leading railroads use Kinnear Rolling Doors because they've proved to be a sound investment in long-lasting low-cost, carefree efficiency. *Write for the 1956 Kinnear catalog.*

—with 1.25 ounces of pure zinc per sq. ft. of metal, ASTM standards.

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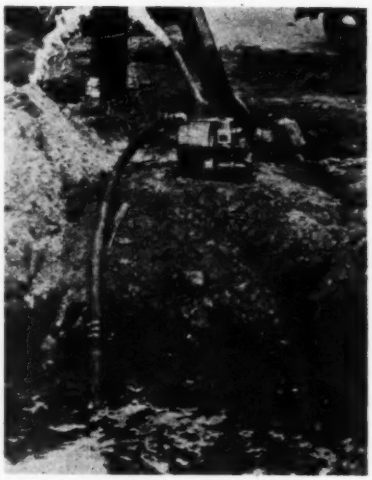
KINNEAR ROLLING DOORS

New Products (Cont'd)



PUMP IS QUIET BUT EFFICIENT

HOMELITE, a division of Textile American, Inc., Port Chester, N. Y. has announced a new self-priming centrifugal pump which is designed to work efficiently at low-noise-level, slow-speed operation and yet deliver a full capacity of 9,000 gph. The new model 36S2, weighing only 87 lb, is said to be fast to set up, quick to start and has a guaranteed 28-ft suction lift and 65-ft total head including friction. Automatic priming at 5-ft suction lift takes only 9 sec. Of simple design the pump has a clog-proof impeller and is powered by a single-cylinder, air-cooled, two-cycle Homelite gasoline engine governed for speeds between 2,550 and 2,650 rpm at open throttle. A carburetor of special design permits the pump to be reduced to quiet speeds between 1,200 and 1,500 rpm by simply closing the throttle.

PORTABLE TOOL KIT

A "B&B" KIT of portable power tools designed for maintenance of bridges and buildings in railway service has been announced by the Mall Tool Company, Chicago. The heart of the new kit is a Model 3WA electric generator mounted on pneumatic tires to provide mobility. This generator is reported to deliver 3,000-watt, 60-cycle, 120-volt ac power when operating under continuous duty. Included in the kit are the following:

A ⅜-in, Model W-780 electric im-

HOLD IT!
Unit Rail Anchors eliminate creepage of track, are easy to apply, easy to remove and re-apply, but hold like an integral part of the rail . . . under all traffic, ballast and temperature conditions.
UNIT RAIL ANCHOR

Unit Rail Anchors are of solid, one-piece construction, formed from high carbon, high manganese steel, and heat treated by a special process to insure a uniform grain structure throughout. Then follows careful tempering by automatically controlled electric Homo furnaces. This improved combination of heat treatment and tempering gives Unit Rail Anchors their reputation for rugged dependability in eliminating track creepage. Unit Rail Anchors are just as effective on *worn* rail as on new rail.

More RUGGED in every respect

UNIT RAIL ANCHOR DIVISION
OF HUBBARD SPECIALTY PRODUCTS, INC.

6301 Butler Street • Pittsburgh 1, Pennsylvania

Chicago Office: Room 924, 332 South Michigan Avenue, Chicago 4, Illinois • New York Office: 3712 Woolworth Building, 233 Broadway, New York 7, New York

YOU CAN BUY A BANTAM
ANY WAY YOU WANT IT!

AS A CRAWLER

CARRIER MOUNTED

SELF-PROPELLED

RAIL MOUNTED

There's a model Specially designed for Your jobs!

Whether you're digging a trench, handling materials, erecting steel or pouring concrete, there's a BANTAM to fit the KEY SPOT on that job! Schield Bantam builds just one size machine . . . builds more of them than anyone else . . . builds them to do more jobs for you with any of 9 different attachments.

For special applications or routine jobs, there's a BANTAM that can do your work faster with more profit for you! Find out about a BANTAM before you buy any ⅜ yd., 5-6-7 ton shovel-crane!

WE HAVE A NEW 7 TON BANTAM

Now, to let you handle bigger lifts, Schield Bantam offers a 7-TON CRANE on Heavy-Duty "300" Crane Carrier! You can also get 5-ton (Crawler) and 6-ton (Carrier and Self-Propelled) cranes to fit your job needs . . . the most complete crane line-up in the ⅜ yd. field!

RT-12

Schield Bantam Co.

284 PARK ST., WAVERLY, IOWA, U.S.A.

WORLD'S LARGEST PRODUCERS OF TRUCK-CRANES AND EXCAVATORS

---CLIP . . . Mail Today for more information about the BANTAM.---

SEND INFORMATION ON:

- ☐ Name of nearest Bantam Distributor
- ☐ New 7-Ton Bantam
- ☐ Crawler Mounted
- ☐ Concrete Bucket ☐ Pile Driver
- ☐ Clam ☐ Crane ☐ Drag ☐ Shovel
- ☐ Back Hoe ☐ Backfiller ☐ Magnet

Name _____ Title _____

Company _____

Address _____

City _____ State _____

New Products (Cont'd)

pact wrench weighing 17 lb, which operates at a free speed of 1,800 rpm and a load speed of 1,080 rpm; a ¾-in steel-cutting electric drill which weighs 19 lb and is equipped with triple gear reduction and which operates at a free speed of 250 rpm and a load speed of 150 rpm; a one-man Model 3EV-23 concrete vibrator driven by a 2-hp electric motor; a Model 128 electric-powered circular saw equipped with a 12-in combination and a 12-in rip blade with a rip-fence guard; a Model 86 hand saw with an 8½-in combination rip-cross-cut blade having a cutting capacity of 2⅞ in; a Model 2E-24 electric chain saw with 24-in bar; a portable 500-watt floodlight; and a cutting guide for bridge and wharf piling.

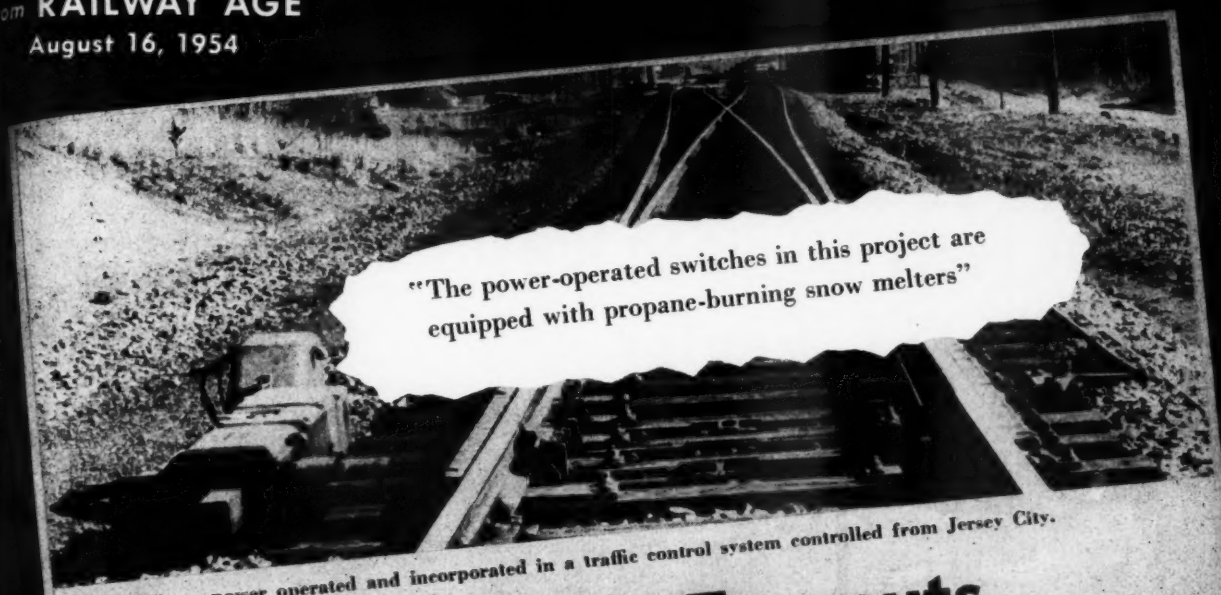
FROSTPROOF WATER HYDRANT

A SANITARY HYDRANT which is reported to be suitable for use in railroad yards, has been introduced by the Crane Comany, Chicago. This product is known as the improved No. 840 self-de-icing hydrant. De-icing is accomplished by an elastic water-tube lining that contracts after each use of the hydrant. When the hydrant is closed, only a small quantity of water remains in the tube and along an internal separator strip where it forms thin "ribbons" of ice in freezing weather. When the valve is reopened the force of the water rushing in under pressure quickly breaks up, melts and evacuates the ice through the spout. It is claimed the hydrant does not have or need an underground drain-off, and as a result the entire unit is sealed against possible water contamination both above and below ground.

The hydrant operates on cold water pressures of from 20 to 100 psi and delivery in gpm is said to be approximately equal to the water pressure. It has a 1½-in female outlet. The spout height is 30 in above ground. The hydrant is available in lengths suitable for standard depths of bury of 3, 4, and 5 ft. All parts of the hydrant are of durable, rust-resistant material with galvanized steel for the stand-pipe and spout, brass for the valve body and silicon bronze for the valve stem.

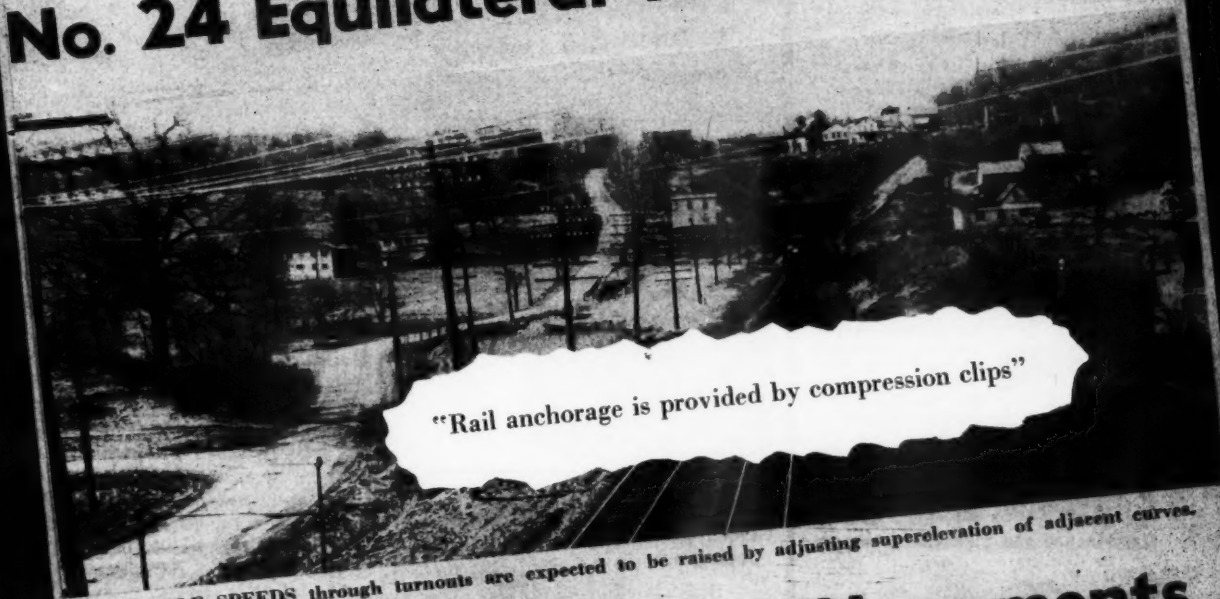
The valve is cam and lever-operated and utilizes line pressure to

From RAILWAY AGE
August 16, 1954



SWITCHES are power operated and incorporated in a traffic control system controlled from Jersey City.

No. 24 Equilateral Turnouts . . .



PERMISSIBLE SPEEDS through turnouts are expected to be raised by adjusting superelevation of adjacent curves.

. . . Permit High-Speed Movements

Installations on the Erie at points where double track converges into single track allow trains to operate through turnouts at the maximum allowable speed of 79 mph with comfort to passengers

Photos: Jay Dee Photo Service

For This Outstanding Job—*The Erie Chose* . . .
RAIL-TEL SWITCH HEATERS—COMPRESSION RAIL ANCHORS

The RAILS Company
RAILS-CO
Hoboken · Chicago · St. Louis

There's a SIMPLEX JACK to Do Every RAILROAD JOB Faster-Easier

Fast Acting TRACK JACKS

15 ton capacity. The jacks set much more firmly and stand straighter under tie (without damage) or rail, due to large area toe lifts. Trip from either side. Two models have light weight aluminum housings.

ALSO: Tie removers and replacers.

Standard Speed BRIDGE JACK

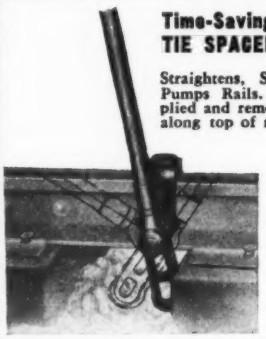
The new A2515 25-ton jack has an aluminum alloy housing, which weighs only 40 pounds. 9-in. lift eliminates re-setting in bridge work. Recommended for use with jack support.

ALSO: A complete line of hydraulic jacks and pullers.

Ratchet Lowering LEVER JACKS

Ideal for lining, shimming, painting, replacing timber decks, pulling headed bolts (½" to ⅞") etc. Available with 3¾" or 5" wide base for use between ties on trestles. Equipped with a 5' chain fitted with a grab hook on one end and a bolt puller on the other.

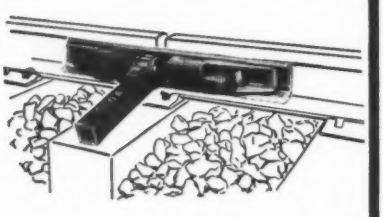
ALSO: Push and pull jacks for piling.



Time-Saving TIE SPACER

Straightens, Spaces Ties. Pumps Rails. Easily applied and removed. Slides along top of rails.

RAIL EXPANDERS for the Maintenance and Signal Departments



Permits *one* man to replace a rail pounding crew! For lining crossings and switches, pushing or pulling continuous rail, controlling expansion or contraction with no interruption of service. With lever socket locked down, nothing protrudes above rail head.

Pole Pulling and Straightening Jacks for the Signal Department

Two sizes, 5 and 15 tons for pulling or straightening all sizes of poles. Pivots on base, when desired, to any angle. Can also be used for guy wire tightening or for pulling underground cable. Model A1538—15-ton capacity—available with aluminum housing which reduces weight 35 pounds.

ALSO: Cable Reel Jacks for drums 30- to 96-in. diameter.

WORLD'S LARGEST WORK OF INDUSTRIAL MECHANICAL AND HYDRAULIC JACKS

SIMPLEX JACKS

RE-MO-TROL JENNY
UTIL-A-TOOL ROL-TOE

Write for Details in Bulletin RR 55

TEMPLETON, KENLY & CO. • 2543 Gardner Road, Broadview, Illinois

New Products (Cont'd)

close and keep it closed. The galvanized cast-iron head cap may be readily lifted after the removal of two retaining screws and the entire valve assembly can be lifted through the top of the standpipe without disturbing either the standpipe or housing.

AIR-COOLED ENGINE

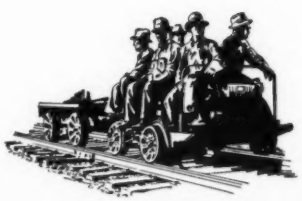
A HORIZONTALLY OPPOSED, 2-cylinder, 4-cycle, air-cooled gasoline engine, known as Model CCK, has been announced by D. W. Onan & Sons, Inc., Minneapolis, Minn.

This new engine is rated at 12.9 hp at 2,700 rpm. The engine has a 3¼-in bore, 3-in stroke and a 50.5-cu in piston displacement. It has a compression ratio of 5.5 to 1 and weighs 148 lb dry with standard accessories. The piston speed is 1,350 fpm at 2,700 rpm.

Model CCK is 19½ in wide, 17⅞ in high and 14¾ in long. The motor is started manually by means of a pull rope.

Among standard accessories included are the pull rope, muffler and instruction manual.

Optional accessories for the engine are a Readi-pull starter, gas-gasoline carburetor and a mounted fuel tank.



Your best defense against weeds on tough terrain... **Concentrated BORASCU®**

© PCB CO.

Why have more roads chosen BORASCU Weed Killers than any other to end their weed hazards about timber structures, yards and sidings? Is it because of its safety and ease of application? True, the granular form makes hand-casting quick and easy wherever a man can walk. There is nothing to mix—no water to haul. It is nonpoisonous, nonflammable, and noncorrosive to ferrous metals.

But the initial low cost of BORASCU is important, too. Actually, *Concentrated* BORASCU furnishes a greater amount of plant-destroying ingredient than any other sodium borate herbicide—at lowest delivered cost—so the economy is great.

Yet we like to think BORASCU's popularity is due primarily to the dependable long-lasting results it so safely provides. For instance, the photo shows a weed-free condition after more than 18 months since being treated with *Concentrated* BORASCU!

Why don't *you* investigate this reliable weed-and-grass killer? Write today for descriptive literature. If after reading the details, you would like to see what *Concentrated* BORASCU can do, just say so. We'll arrange a demonstration for you on your road—under your conditions—without charge or obligation.

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AGRICULTURAL SALES DIVISION OFFICES: CHICAGO • NEW YORK • SEATTLE PORTLAND • DENVER • CLEVELAND • AUBURN • KANSAS CITY • PHILADELPHIA SAN FRANCISCO • STOCKTON • NEW ORLEANS • MINNEAPOLIS • POCATELLO HOUSTON • FT. WORTH • LUBBOCK • OMAHA • CALGARY, ALBERTA

MADE BY THE MANUFACTURERS OF FAMOUS "20 MULE TEAM" PACKAGE PRODUCTS

THE MONTH'S NEWS...

. . . among railway men—the associations—the suppliers

Engineering

N. B. Roberts, assistant engineer on the Canadian Pacific at Toronto, Ont., has been promoted to district engineer of the Algoma district with headquarters at North Bay, Ont. Mr. Roberts succeeds **J. R. Caswell,** who has retired after 45 years of service.

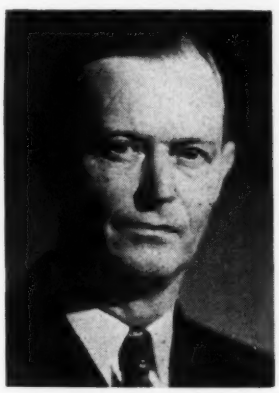
G. L. Roberts, assistant engineer, Toronto Terminal Railways, Toronto, Ont., has been promoted to terminal engineer.

R. F. MacKenzie, division engineer at New Glasgow, N. S., on the Canadian National, has been appointed assistant engineer maintenance of way on the Central region, with headquarters at Toronto, Ont.

John H. Spicer, assistant district engineer of the Alberta district at Edmonton, Alta., has been promoted to district engineer with the same headquarters.

R. G. Maugham, structural engineer in the office of the bridge engineer of the Central Region at Toronto, has been appointed assistant bridge engineer, Central Region, with the same headquarters.

B. H. Crosland, whose promotion to chief engineer maintenance of way, on the Frisco at Springfield, Mo., was announced recently (**RT&S,** Nov., pg. 72), was born in Rochester, N. Y., on July 9, 1891. He received his education at



B. H. Crosland

Valparaiso University, and entered railway service during school vacation in 1908 as a chainman for the Canadian Pacific. During subsequent summers he served as chainman and rodman on several other roads. From 1914 to 1917 he was employed as an instrumentman on a railway evaluation team for the ICC and after serving with the Army engineers in World War I he went with the Frisco as an instrumentman in 1920. He held successively the positions of assistant engineer, roadmaster, assistant division engineer and division engineer until 1942. After serving four years as a colonel with the Army engineers in World War II, he returned to the Frisco in 1946 as assistant chief engineer, which position he held until his recent promotion.

H. L. Gastler, who has been named assistant process engineer on the Frisco at Springfield, Mo. (**RT&S,** Nov., pg. 70), was born in Wellsville, Mo., on May 16, 1927. He received his BS degree in civil engineering from the University of Missouri in February 1951. He began railway service with the Frisco that year as a student apprentice at Springfield and subsequently served in that capacity at Chaffee, Mo. He was appointed student supervisor at Springfield in 1952 and was promoted to assistant roadmaster at Joplin, Mo., in 1953. He was transferred to Fort Scott, Kans., as assistant roadmaster in January 1954.

H. F. Busch, whose retirement as division engineer of the Eastern division, north and south, of the Frisco at Springfield, Mo., was announced recently (**RT&S,** Nov., pg. 73), was born in Copenhagen, Denmark, on December 27, 1885. He was graduated from Kansas Univer-

We are glad to have helped in a small way to give character to this splendid railroad. The Erie has bought our material since April, 1904, and it may be found from Jersey City to Chicago. We wish for the able and courteous gentlemen who operate this road the best of success for another half century at least.

Hayes Track Appliance Co.

Richmond, Indiana

2¼-yd. MICHIGAN 175A strips hot mix asphalt without scarifying . . .

This big POWERHOUSE handles bigger jobs cheaper!

Check the specs of the MICHIGAN* 175A:

BUCKET CAPACITY..... 2¼ yds.
WEIGHT..... 24,100 lbs.
LIFTING CAPACITY..... 15,000 lbs.
SPEED..Up to 27 mph, Forward and Reverse
HORSEPOWER..... 133 Diesel, 126 Gas, 165 Supercharged

Don't look for "comparative" data on the MICHIGAN 175A—there is *no machine comparable*. This big bruiser is nearly 50% bigger than the next closest machine on the market. From flywheel to bucket, the 175A is built to do bigger, heavier jobs—jobs that no other rubber-tired machine can handle.

Better traction and flotation With the MICHIGAN's exclusive power train—300% torque multiplication, power shift transmission (no engine clutch) and planetary wheel axles—you get a shockless flow of power right down to the ground. There's no surge, no wind-up in the axle shaft, no wild wheel-spin. The operator has feather-touch control over his wheels; in weak soil conditions or mud, he can ease off or step up the power to keep from digging in. With this kind of smooth power transmission, you get the full advantage of the MICHIGAN's extra weight and power—you dig material *out*, you don't dig the machine *in*.

Hydraulic power does the work In spite of its size and power, the MICHIGAN 175A is easier to operate than most machines one-third its size. Hydraulic power does all the real work: power steering, 4-wheel power brakes, power-shifting with two simple levers on the steering column, no clutch pedal.

See it in action! We'll prove that the MICHIGAN is in a class by itself in the Tractor Shovel field: your local MICHIGAN distributor will arrange a demonstration—on your own job, if you wish. Or write for 12-page Tractor Shovel booklet containing explanation and cutaway drawings of the MICHIGAN power train. Any MICHIGAN is available on a low-cost Lease Plan—ask for brochure which explains how you can use it.

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY
Construction Machinery Division
492 Second Street
Benton Harbor 30, Michigan
Phone WA 6-6184

*A Trademark of Clark Equipment Company

sity in 1907 with a BS degree and entered railway service with the Frisco during that year as an inspector of construction at Springfield. In 1909 he was promoted to assistant engineer in the district engineer's office. Mr. Busch remained in that capacity until 1920 when he was advanced to division engineer of the Northern division at Fort Scott, Kans. He then served successively as division engineer on the Southwestern, River, Southern and Eastern divisions until his retirement.

P. D. Coons, special engineer on the Burlington at Chicago, has retired after 38 years of service. Mr. Coons is succeeded by **E. W. Gibson,** senior estimator at that point.

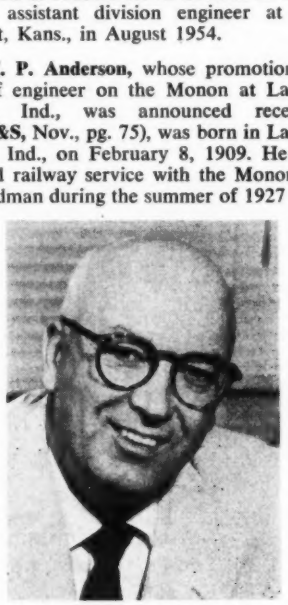
B. C. Davidson, whose promotion to assistant process engineer on the Frisco at Springfield, Mo., was announced recently (**RT&S,** Nov. pg. 70), was born on March 25, 1926, in Grady county, Okla. He attended the University of Texas and the University of Oklahoma, graduating from the latter in 1948. Mr. Davidson began railroad service with the Frisco on August 9, 1948, as a rodman at Enid, Okla. He was promoted to instrumentman in the division office at Springfield, in 1949 and was advanced to assistant engineer at that point in 1953, which position he was holding at the time of his recent promotion.

J. H. Brown, whose promotion to division engineer on the Frisco at Ft. Worth, Tex., was announced recently (**RT&S,** Nov., pg. 73), was born in St. Louis, Mo., on November 27, 1926. He attended Creighton University at Omaha, Neb.,

J. H. Brown

while serving in the U. S. Army Air Force and, after finishing his tour of duty in the service, entered the University of Missouri at Columbia. He graduated in 1948 with a BS degree in civil engineering and was employed by the Frisco as a student apprentice at Chaffee, Mo. He subsequently served in this capacity at Memphis, Tenn., and Amory, Miss. He was appointed student supervisor at St. Louis in September 1950 and was promoted to assistant roadmaster at Ft. Worth later that same year. He was advanced to roadmaster at Chaffee in 1951 and assistant division engineer at Ft. Scott, Kans., in August 1954.

M. P. Anderson, whose promotion to chief engineer on the Monon at Lafayette, Ind., was announced recently (**RT&S,** Nov., pg. 75), was born in Lafayette, Ind., on February 8, 1909. He entered railway service with the Monon as a rodman during the summer of 1927 and



M. P. Anderson

served subsequent summers in that capacity until his graduation from Purdue University with a BS degree in civil engineering in 1930. He continued to work on the Monon, as a junior engineer and

LOCK SPIKES

- hold gage
- prolong tie life
- save maintenance

for the ERIE

LOCK SPIKES hold tie plates firmly in place on cross-ties and bridge timbers. They are quickly and easily driven, or removed, with standard track tools. Driven to refusal, the spread shank is compressed by the walls of the hole. Tie plates are held against horizontal and vertical movement under spring pressure. Play between the spike and the hole is eliminated—gage is held and plate cutting is overcome.

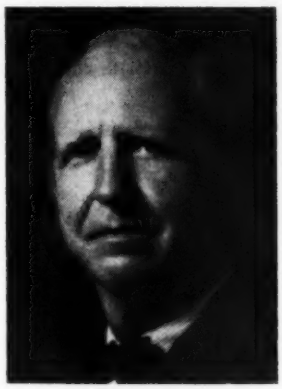
LOCK SPIKES not only become integral with the tie plate, but also the lateral pressure by the legs against the sides of the tie hole, binds the spike in the tie. This unique feature gives tight adhesion between tie and plate.

LOCK SPIKES were first installed in 1947. Since they have been in track, no maintenance whatever has been required. Cost of installing in track is low and comparable to cut spikes. The advantages and saving only found in Lock Spikes reduces the annual cost of ties in track and maintenance expense to a minimum. We invite your investigation.

BERNUTH, LEMBCKE CO., INC.
420 Lexington Avenue, New York 17, N. Y.

was advanced to assistant engineer in 1938. Between the years 1943 and 1946 he served in the Military Railway Service as a captain in India. He returned to the Monon in 1946 and held the position of assistant engineer and office engineer until his appointment as assistant chief engineer in 1953.

R. J. Crane, chief engineer of the New York Central, Lines Buffalo and East, with headquarters at New York, has retired after 37 years of service. Mr.



R. J. Crane

Crane was born at Brewster, N. Y., on February 21, 1890, and attended New York University and Bucknell University graduating from the latter in 1914 with a BS degree in civil engineering. He entered railway service with the New York Central in 1916 as a designer and successively held positions as assistant engineer, assistant engineer in the office of the vice-president, improvement and development, and special engineer in the road's New York offices. He served as a lieutenant-colonel and colonel U.S. Army, Military Railway Service, during World War II, with foreign service in Africa, Italy and the European Theatre of Operations. In December 1945 he returned to the New York Central as assistant chief engineer and was promoted to chief engineer in January 1953, which position he held until his retirement.

J. L. Fergus, assistant chief engineer of the Nashville, Chattanooga & St. Louis, has been appointed acting chief engineer, effective November 16, with headquarters as before at Nashville, Tenn. **J. C. Aker,** chief engineer, has retired, effective the same date, after 44 years of service with the NC&StL.

Robert K. McKinnon, assistant engineer on the Central of Georgia at Savannah, Ga., has been promoted to engineer of bridges, with headquarters at the same location. **Frank W. Seyle** has joined the company as assistant engineer, replacing Mr. McKinnon. Mr. Seyle had been previously employed by local firms.

T. M. Connor, assistant engineer on the Seaboard Air Line, has been promoted to assistant division engineer, Carolina division, with headquarters at Savannah, Ga. Mr. Connor, a native of Orangeburg, S. C., was graduated

under its own power at 28 mph

D Tournapull can travel 10, 25 or 50 miles...complete one or more average maintenance jobs...and get back to its original assignment, all in one day! Its 28 mph work and travel speeds let you handle emergencies as soon as they are reported. On a typical day, a "D" can complete a schedule like this:

7:45 A.M. Station agent reports washout 30 miles away.

8:00 A.M. Operator reports for work, gets assignment, climbs on Tournapull, and drives off. No waiting for flatbed, no loading or blocking. Rig averages 20 to 28 mph through traffic.

9:30 A.M. Arrives at site.

9:31 A.M. Goes to work immediately. No time lost unloading, planking, etc. Self-loading from right-of-way pits 500′ from the washout, the "D" hauls and spreads 100 cubic yards of clay fill in about an hour.

10:30 A.M. Using bulldozer blade, the "D" spends a half-hour finish-grading. One piece of equipment and one operator handle entire assignment.

11:00 A.M. Operator drives rig over main highways 20 miles to next assignment — trimming side-slopes to improve drainage.

12:00 Noon Arrives at site, takes hour for lunch.

1:00 P.M. Starts moving dirt to slough a mile away. Self-loads, hauls along right-of-way, dumps 5 loads in an hour. Finishes slopes, spreads fill with dozer blade.

2:00 P.M. Drives 15 miles to help enlarge yard, build sidings.

2:45 P.M. Starts grading . . . works steadily 'til 4:30. In 1¾ hours, self-loaded "D" moves 140 cubic yards of clay over average 1400′ cycles.

4:30 P.M. Operator and rig take off for headquarters, make 10-mile trip over heavily-traveled highways in ½ hour, are back at 5 o'clock.

Find out what D Tournapull can do for your road in giving better, faster service all year 'round. Send coupon for more information.

Tournapull—Trademark Reg. U.S. Pat. Off. DP-821-RR-z

FREE . . . "The Railroad Handyman"

20-page book shows how the 7-yd self-loading D Tournapull cuts time and costs on right-of-way maintenance. Send coupon for your free copy. No obligation. Also ask to see our 16 mm. full-color movie, "Clear the Track."

Name ..... Title .....

Division .....

Railroad .....

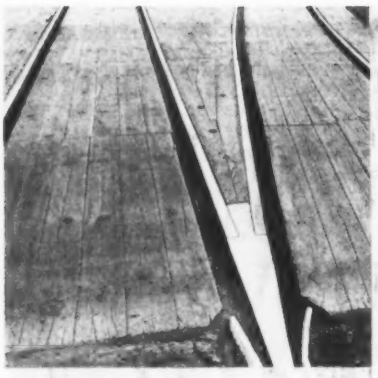
Address .....

DP-821-RR-z

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company



CUT MAINTENANCE COSTS

MOSS Pressure Treated CROSSINGS

BUILT OF BLACK GUM TO LAST AND LAST!

GREATER STRENGTH . . .

Slabs now securely tied together with four through-bolts, and lock nuts that won't back off.

LONGER DURABILITY . . .

No heaving or spalling, no potholes. Many crossings giving trouble-free service after 15 and more years.

MORE VERSATILITY . . .

Tailored to your specifications; no cutting or fitting on the job. Easy installation or relocation.

GREATER ECONOMY . . .

No big capital expenditure, and minimum annual maintenance.

MTC The Stamp of Character

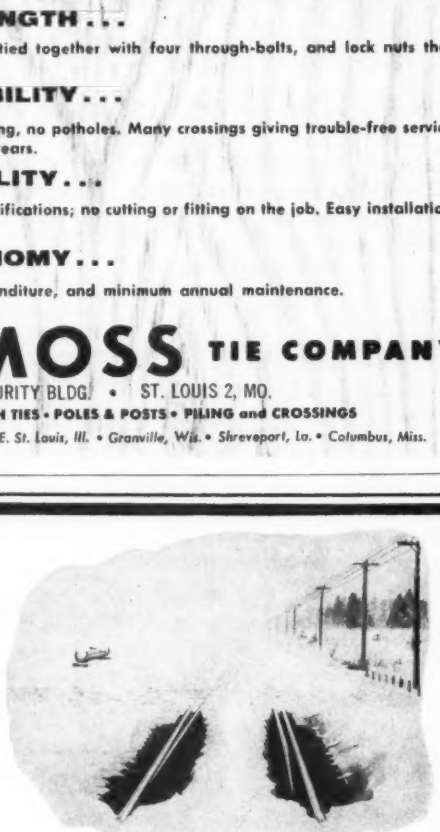
T. J. MOSS TIE COMPANY

700 SECURITY BLDG. • ST. LOUIS 2, MO.

CROSS TIES • SWITCH TIES • POLES & POSTS • PILING and CROSSINGS

WOOD PRESERVING PLANTS: *E. St. Louis, Ill. • Granville, Wis. • Shreveport, La. • Columbus, Miss.*

IT'S A PLEASURE TO SERVE THE ERIE



The Erie Railroad is one of the leaders in the use of automatic, dependable Suburban Propane Gas for the heat necessary to keep the switches free from ice and snow.

In designing its switch heating systems, Erie's management takes full advantage of the flexibility and dependability of this superior fuel. Particularly outstanding is the use of remote control for lighting and regulating the propane burners. This modern development has effected major economies as well as efficiency of operation.

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Railway Personnel (Cont'd)

from Clemson College in 1950 with a BS degree in civil engineering. He began his railroad service with the road in 1951 as a rodman and was promoted to assistant engineer in 1953.

J. L. Perrier, division engineer on the Chicago & North Western, who had been temporarily assigned to other duties, has returned to his former position as division engineer, Wisconsin division, with headquarters at Chicago. **R. W. Bailey,** acting division engineer in the absence of Mr. Perrier, has been promoted to division engineer, Dakota division, at Huron, S. D., succeeding **J. A. Barnes** who has been transferred to Madison, Wis., as division engineer of the Madison division. Mr. Barnes replaces **R. D. Culbertson** who has left the company.

James Lundie, locating engineer on the Canadian Pacific, with headquarters at Hemlo, Ont., has been promoted to district engineer of the New Brunswick district, with headquarters at St. John, N. B., succeeding **J. J. Richardson,** who has retired.

James Lundie

A native of St. Thomas, Ont., Mr. Lundie started his railroad career as a draftsman with the engineering department of the CPR at Moose Jaw, Sask., in 1928. In 1939 he was promoted to bridge and building master at Regina, Sask., and from 1944 to 1950 he served as division engineer at various locations. Mr. Lundie then became assistant district engineer at Toronto. About two years ago Mr. Lundie was appointed locating engineer, assigned to the construction of a 40-mile stretch of track that heads north through the wilderness from the CPR's main line to a new mining area north of Lake Superior.

B. H. Owens, general foreman bridges and buildings on the Illinois Central at Vicksburg, Miss., has been promoted to supervisor bridges and buildings on the Vicksburg division with the same headquarters. Mr. Owens succeeds **R. F. Cook** who died recently. **C. F. Cantrell,** carpenter on the Vicksburg division, succeeds Mr. Owens as general foreman B&B.

General

R. A. Gleason, superintendent of the Lake Erie and Western district of the Nickel Plate, and an engineer by training and experience, has been transferred to the Buffalo-Cleveland divisions with headquarters at Conneaut, Ohio.

Special

C. E. McEntee, instrumentman on the Iowa division of the Illinois Central at Waterloo, Iowa, has been promoted to assistant engineer ties and treatment with headquarters at Chicago. Mr. McEntee succeeds to the position formerly held by **R. D. Radkey** who was promoted to engineer ties and treatment on February 1, 1955.

Obituary

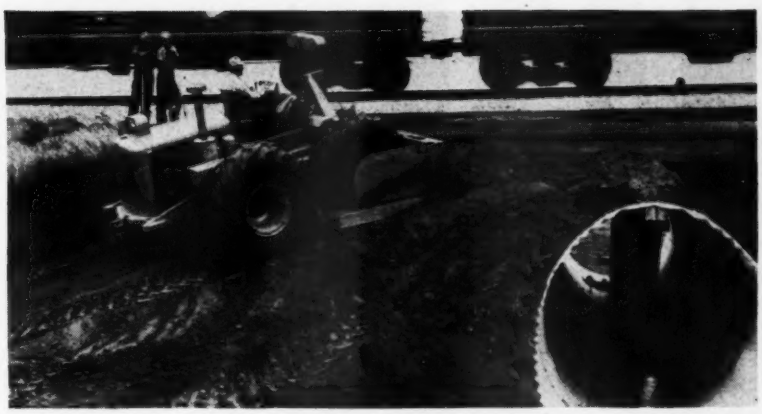
Prosper E. Thian, retired consulting engineer, Northern Pacific, died at St. Paul, Minn., on November 9. Mr. Thian was born on July 13, 1862, at Washington, D. C., and graduated from Georgetown University. His railroad service began with the Denver & Rio Grande Western in Utah in 1881 and he subsequently worked for various railways, including the Northern Pacific, in the U.S. and Canada. He returned to the NP in 1908 as assistant engineer on location and construction in North Dakota and Montana and was advanced to valuation engineer in 1913 at St. Paul. He was promoted to consulting engineer at that point in 1928, which position he held until his retirement in 1939.

Track

B. J. Bishop, assistant roadmaster on the Frisco at Chaffee, Mo., has been promoted to roadmaster of the Twenty-second track division, with headquarters at Hugo, Okla. He succeeds **R. J. McDiarmid,** who has resigned to accept a position as associate editor of *Railway Track & Structures.*

Willie Morrison, whose promotion to supervisor of track on the Illinois Central at Durant, Miss., was announced recently (**RT&S,** Oct., pg. 79), was born in Edwards, Miss., on December 12, 1915. He started his railway service with the Illinois Central on April 16, 1937, and held various positions in the track department until his appointment as assistant to engineer ties and treatment, with headquarters at Jackson, Miss., in 1952. He was employed in this capacity at the time of his recent promotion.

W. Laird Harris, 3rd, whose promotion to track supervisor on the Maine Central at Brunswick, Me., was announced recently (**RT&S,** Nov., pg. 74), was born August 10, 1922, at Portland, Me. Mr. Harris was graduated from the University of Maine in 1949, with a BS degree in civil engineering, and entered service with the Maine Central on May 1, 1951, as an inspector in the engineering department at Portland. He was advanced to instrumentman at that point in Sep-



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Driving to job at speeds to 19 mph saves delays, gets more work done. Tournatractor follows the track . . . or travels by highway . . . or alongside on right-of-way . . . takes shortest route. Big tires do not damage tracks, ties, switches.

Coal, cinders, ballast, or stockpile of other materials are specialties of high-speed Tournatractor. Big tires compact coal without grinding it to fines . . . reduce danger of spontaneous combustion.

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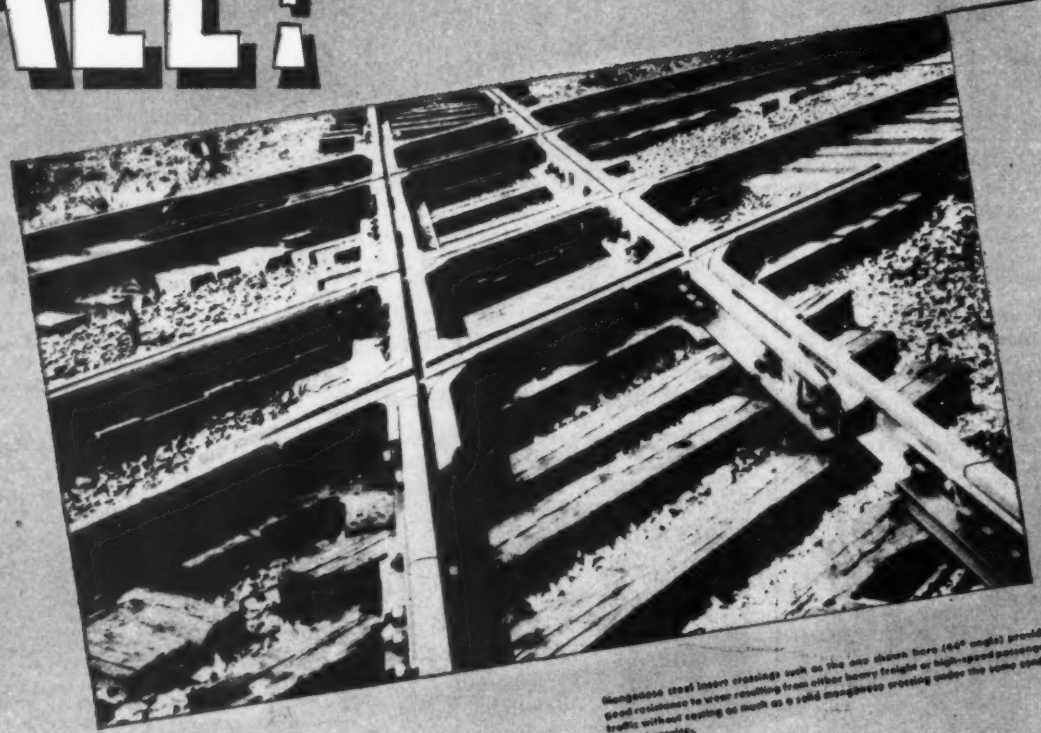

Contains data, photographs, and diagrams on USS TRACKWORK products

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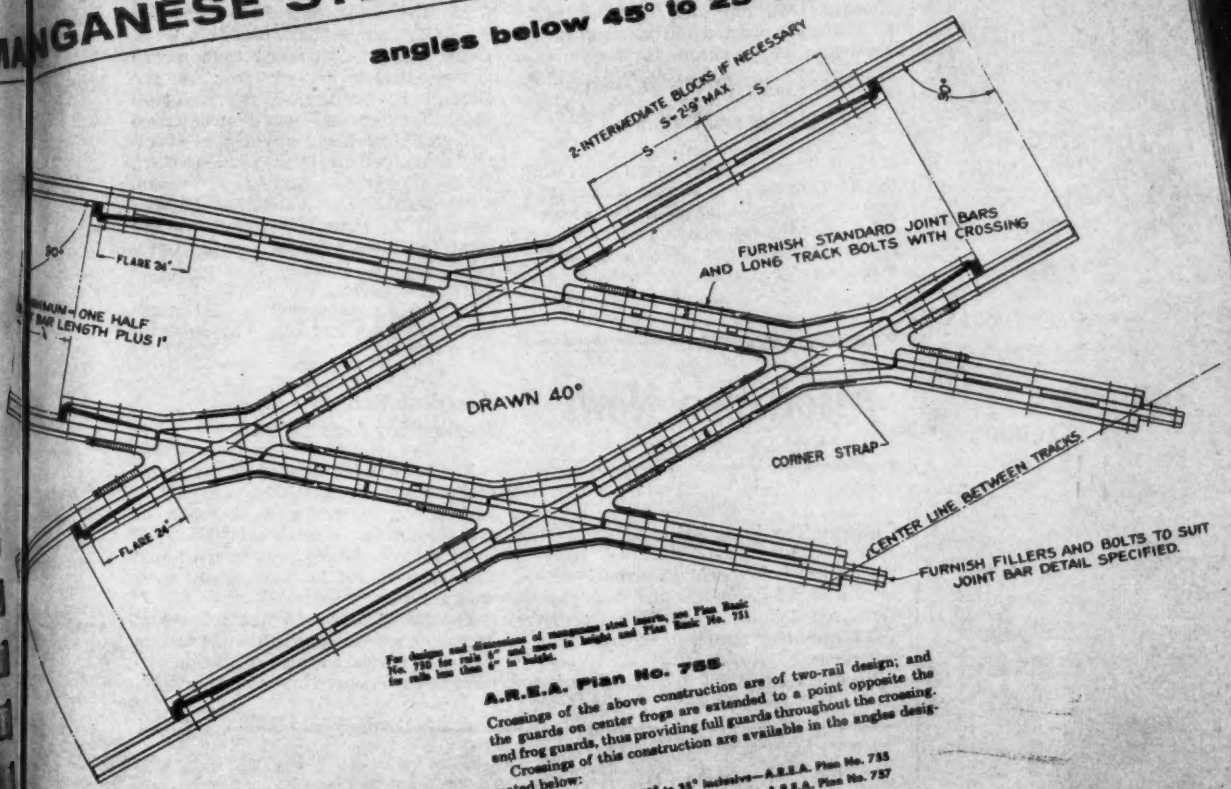
1. **INTRODUCTION**—describes the care and control that goes into the manufacture of quality trackwork.
2. **CROSSINGS**—offers full information on Bolted Rail Construction, Manganese Steel Insert Construction, Solid Manganese Steel Construction; photographs of assembled structures plus detailed diagrams bearing angles and dimensions.
3. **FROGS**—contains complete photographs, descriptions, numbers, angles, and diagrams of all U.S. Steel Frogs and Tie Plates.
4. **SWITCHES**—complete listings of many types of switches made by U.S. Steel, plus Switch Points, Slide Plates and Braces, Switch Stands, Switch Rods and Clips, and Industrial Turnouts. Photographs and detailed diagrams included.
5. **MISCELLANEOUS**—lists parts nomenclature, ordering information, weights, mathematical details of structures, etc.

UNITED STATES STEEL

TRACKWORK CATAL

ANGANESE STEEL INSERT CROSSINGS

angles below 45° to 25° inclusive



For designs and dimensions of manganese steel inserts see Plan Basic No. 710 for rails 6" and more in height and Plan Basic No. 751 for rails less than 6" in height.

A.R.E.A. Plan No. 755

Crossings of the above construction are of two-rail design; and the guards on center frogs are extended to a point opposite the end frog guards, thus providing full guards throughout the crossing.

Crossings of this construction are available in the angles designated below:

Angles Below 45° to 35° Inclusive—A.R.E.A. Plan No. 735
Angles Below 35° to 25° Inclusive—A.R.E.A. Plan No. 737

23

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Railway Personnel (Cont'd)

tember 1952 and to student track supervisor at Lewiston, Me., in November 1952. He was promoted to assistant track supervisor at Lewiston in November 1954.

Bridge and Building

C. A. Murtaugh, master carpenter on the Kent division of the Erie at Marion, Ohio, has retired after 37 years of service. **C. G. Bucher,** assistant master carpenter at Salamanca, N. Y., succeeds Mr. Murtaugh.

Association News

Railway Tie Association

The association held its annual convention at the Peabody Hotel, Memphis, Tenn., on October 26-28. The meeting was attended by a total of 469 members and guests.

In the election of officers Douglas Grymes, Jr., vice-president and executive assistant to the vice-president and general manager, Wood Preserving Division, Koppers Company, Inc., was moved up from first vice-president to president; Frank W. Campbell, Jr., president, W. B. Crane Co., was advanced from second vice-president to first vice-president, and Edward F. Schlafly, secretary, Potosi Tie & Lumber Co., was elected second vice-president. Members of the Executive committee are D. B. Frampton, Jr., D. B. Frampton & Co.; M. L. Wilson, Kirby Lumber Corporation; W. L. Winham, T. J. Moss Tie Company; and Henry Webster, Western Lumber Company. Roy M. Edmonds was re-elected secretary-treasurer.

The 1956 meeting will be held at the Hotel Roanoke, Roanoke, Va., on October 24-26.

American Railway Engineering Association

The regular fall meeting of the Board of Direction of the AREA was held at Chicago on November 4. A report of the Nominating committee, which had met earlier in the day, was received, and the personnel of committees to serve during 1956 was approved.

The Board took an important step in approving a proposal that the association sponsor a special showing of motion pictures at the Palmer House on March 12,

A Question and an Answer

Looking for the "What's the Answer?" department? It'll be back next month. It was omitted from this issue to allow more space for the special report on the Erie. Questions to be answered in January and February were published in earlier issues. Given below are the questions to be answered in the March issue.

Answers are solicited from readers. They should be addressed to the What's the Answer editor, *Railway Track and Structures*, 79 W. Monroe St., Chicago 3, and reach him at least five (5) weeks in advance of the publication date (the first of the month) of the issue in which they are to appear. An honorarium will be given for each published answer on the basis of its substance and length. Answers will appear with or without the name and title of the author, as may be requested. The editor will also welcome any questions which you wish discussed.

To Be Answered In the March Issue

1. Production-type tamping machines are sometimes operated in tandem, tamping alternate ties. Does the progress of the work and relative cost of this method justify its use? Are there any disadvantages?

2. What is the most effective way to clean out the downspouts of buildings when they have become filled with ice? What precautions can be taken to prevent this condition from developing? Explain.

3. What are the minimum requirements of any program for the training of machine operators? What important factors should be stressed in such a program? Why?

4. What are the best methods of securing accurate positioning of piles when they are driven with the aid of swinging leads suspended from the boom of a derrick or crane? Explain.

5. When making inspections of the riding qualities of track from moving trains, what are the physical indications of irregularity of line? Of surface? Of both line and surface? How can they be distinguished from the normal reactions of the moving equipment?

6. At terminals where both diesel road locomotives and switchers are handled, under what circumstances is it desirable to provide separate servicing facilities for each type of power?

1956, which is the day preceding the opening of the annual convention. The plan is that moving pictures of special interest to members of the AREA will be shown continuously during the day. These will consist essentially of films showing the construction and maintenance of railway properties including both tracks and structures. The showing will be for the benefit of those members who plan to be in Chicago in advance of the opening of the convention. The films will be shown in the hotel exhibit hall which is adjacent to the convention floor.

Maintenance of Way Club of Chicago

The December meeting of the club will be held on the 19th at the Hamilton Hotel, Chicago. The principal speaker will be V. C. Hanna, chief engineer, Terminal Railroad Association of St. Louis, whose subject will be "Maintenance of Railroad Crossings at Grade." This is a subject with which Mr. Hanna has had extensive experience, and for that reason is in a position to make an interesting talk.

The 1955-56 season got off to a good start with a meeting on October 31, which was attended by 281 members and guests. The main feature of this meeting was the showing of a color motion picture depicting practices followed on the Santa Fe in welding and laying continuous rails. Commentary for the picture was given by R. H. Beeder, assistant chief engineer of the Santa Fe System.

Northwest Maintenance of Way Club

The next meeting of the club will be held on December 15 at the Midway Civic Club, 1931 University avenue, St. Paul, Minn. The principal speaker will be D. C. Hill, superintendent of communications of the Northern Pacific. His subject will be "Modern Communications for a Modern Railroad." Mr. Hill will cover such subjects as modern telephone, telegraph, Teletype and radio communications and will also discuss carrier communications, a system that employs one pair of wires for sending many messages simultaneously. Mr. Hill will describe the communications system in the new retarder yard the Northern Pacific has built at Pasco, Wash. He will use slide pictures to illustrate his remarks.

The October meeting of the club, held on the 27th, was attended by 103 members and guests.

Organizations

American Railway Bridge and Building Association—Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5.

American Railway Engineering Association—Neal D. Howard, Secretary, 59 E. Van Buren street, Chicago 5.

American Wood-Preservers' Association—W. A. Penrose, Secretary-treasurer, 839 Seventeenth street, N. W., Washington 6, D. C.

Bridge and Building Supply Association—L. R. Gurley, Secretary, 201 North Wells street, Chicago 6.

Maintenance of Way Club of Chicago—S. Kosco, Secretary-Treasurer, 135 East Eleventh place, Chicago 5.

Metropolitan Maintenance of Way Club—Secretary, 30 Church street, New York.

Mississippi Valley Maintenance of Way Club—P. E. Odom, Secretary-Treasurer, Room 1008, Frisco Building, 906 Olive street, St. Louis 1, Mo.

National Railway Appliances Association—Kenneth Cavins, Secretary, 310 S. Michigan avenue, Chicago 4; Lewis Thomas, Assistant Secretary, 59 East Van Buren street, Chicago 5.

Northwest Maintenance of Way Club—L. C. Blanchard, secretary-treasurer, Room 27, Milwaukee Depot, Minneapolis 1, Minn.

Railway Tie Association—Roy M. Edmonds, Secretary-Treasurer, 1221 Locust street, St. Louis 3, Mo.

Roadmasters' and Maintenance of Way Association of America—Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5.

Track Supply Association—Lewis Thomas, Secretary, 59 E. Van Buren street, Chicago 5.

Supply Trade News

General

The Bucyrus-Erie Company has appointed the **Syracuse Supply Company,** Syracuse, N. Y., to serve as its distributor in the central New York territory.

The Railway Maintenance Corporation has appointed the **Mississippi Supply Company** to act as its sales representative in the Chicago area.

Templeton-Kenly & Co., Broadview, Ill., has introduced a new hydraulic jack repair service plan for users of Simplex hydraulic jacks. Carefully selected jack repair shops in all important industrial areas are being franchised as factory authorized service depots. An announcement states that the new plan will insure dependable repairs by men who have been especially trained to service Simplex hydraulic jacks, and make it easier for users to obtain repairs in the field with genuine factory parts.

When the **Orton Crane & Shovel Co.** recently sold twelve 25-ton locomotive cranes to the Erie, the manufacturer agreed to service the cranes for a period of two years without additional charge. Under the agreement Orton assumes complete responsibility for continuous service of the cranes from instruction of the operators to the supply and installation of necessary parts. The reasoning of the manufacturer is that it is his "responsibility to give the Erie every help in maintaining the cranes without making separate charges for such work."

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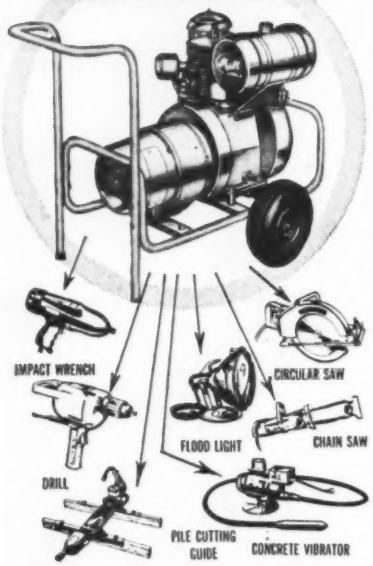

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Supply Trade News (Cont'd)

Results are said to show "an amazingly high 'readiness-for-service' factor" in the use of the cranes.

Personal

Tom Barrett has been promoted to assistant sales manager of the **Wisconsin Motor Corporation,** Milwaukee, Wis. Mr. Barrett has been sales representative for

Tom Barrett

the company for several years. In his new capacity, he will assist in the sales and distribution of Wisconsin heavy-duty air-cooled engines in the domestic market.

G. O. Britton has been appointed manager of distributor sales of the **American Hoist & Derrick Co.,** St. Paul, Minn.

G. O. Britton

Mr. Britton will be responsible for sales of the company's line of crawler and truck-mounted cranes and excavators, as well as hoists and derricks. Prior to his connection with American Hoist, Mr. Britton was general sales manager of the Schield Bantam Company, starting there in 1949 after serving as domestic sales manager of the Athey Products Company.

William J. Donlin, III, Robert W. Eadie, and **Thomas S. Hemenway, Jr.,**
(*Continued on page* 90)

A Salute to the Erie . . .

and congratulations on your outstanding operations and performance!

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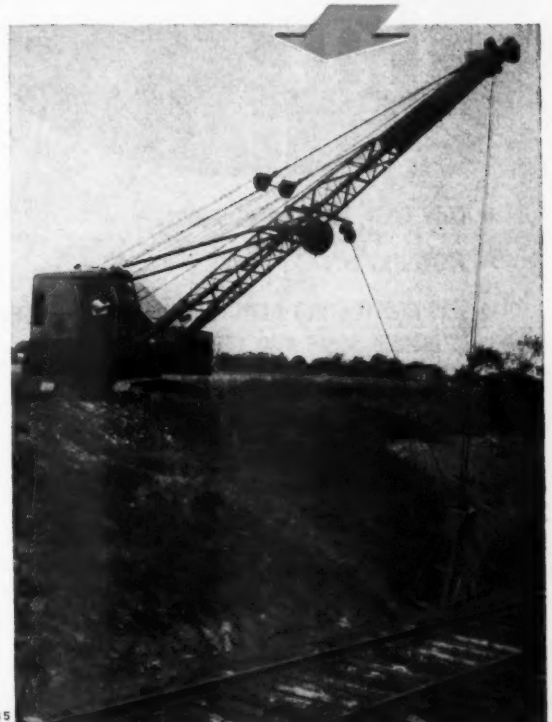

You get ½-yard dipper capacity as a shovel or hoe. As a crane, it safely lifts 6.9 tons from car, 8.9 tons on ground . . . converts to clamshell, dragline. For more facts, write: *Koehring Company, Milwaukee 16, Wisconsin.*

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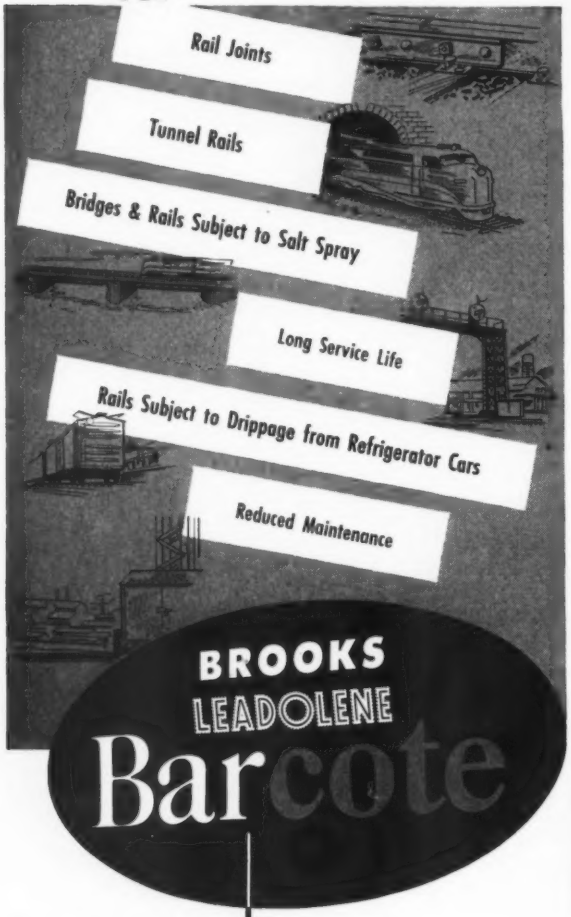

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Size of Rerailer	*For Use on Rails as Follows*	*Locomotive or Car Capacity*
No. 2	16 lbs. to 40 lbs.	10 tons
No. 3	30 lbs. to 60 lbs.	15 tons
No. 3½	40 lbs. to 70 lbs.	20 tons
No. 4	50 lbs. to 75 lbs.	40 tons
No. 5	70 lbs. to 100 lbs.	100 tons
No. 5½	85 lbs. to 133 lbs.	200 tons
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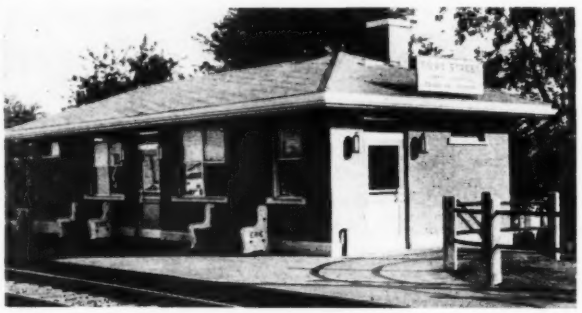

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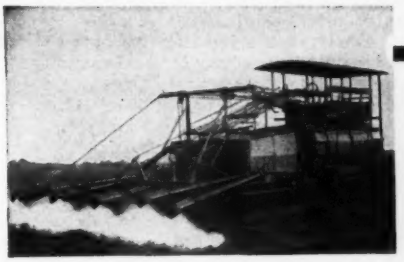
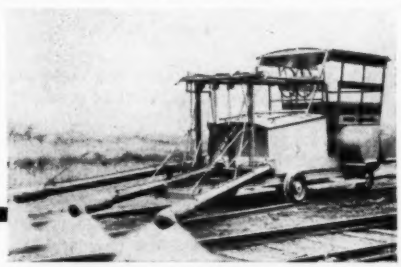


MODEL WBZ—WOOLERY GIANT OCTOPUS (shown at right) is the favorite for heavy duty requirements. Will destroy a swath 25 feet wide in one trip or up to 35 feet with burner arms extended on second trip.

Model WBF—WOOLERY MIDGET OCTOPUS (shown at left) is recommended for normal requirements and has all the features of its bigger brother. Has three burners instead of five and will burn a swath 15 feet wide on first trip and 25 feet on the second.



Model PB-B—WOOLERY WEED BURNER trailer type (not shown) can be towed by motor car. Three burners clear a swath 15 feet wide on first trip and if required can be widened to 25 feet with burners extended on second trip. Woolery Weed Burners are available in 4 sizes to meet your needs for effective, low cost roadbed maintenance. Burner jets are individually controlled and will destroy ALL types of weeds on roadbeds, embankments and ditches. Can also be used in winter for melting ice and snow.

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JOINT BARS

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ANGLE BARS for OLD RAILS

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GENERAL OFFICES: KEYSTONE BLDG.
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Supply Trade News (Cont'd)

(*Continued from page* 86)

have been appointed district representatives in the Construction Materials division of the **General Electric Company.** Mr. Donlin will cover the Allentown (Pa.) trading area where he will handle the division's conduit products, wiring devices and wire and cable lines. Mr. Eadie's territory will be the Davenport (Iowa) area where he will cover the conduit products and wiring device lines. Mr. Hemenway has been assigned to the Chicago area where he will handle wire and cable products.

Harlan B. Wilson has been appointed field supervisor, Traffic and Transportation department, **Koppers Company, Inc. Richard E. Spatz** will succeed Mr. Wilson as supervisor, Traffic section, and will retain his responsibilities as commerce counsel. **Fred R. Pfeiffer** has been appointed assistant supervisor, Traffic section.

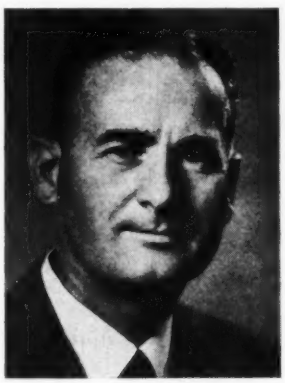
Frank A. Grooss has been appointed an assistant to the vice-president of the **Caterpillar Tractor Company** who has administrative responsibility for the engineering and research departments. A specialist in the development of wheel tractors, motor graders and scrapers, Mr. Grooss was formerly chief engineer at

Frank A. Grooss

the company's new plant at Decatur, Ill. A mechanical engineering graduate of the University of Illinois he joined Caterpillar in 1941 and participated in the college graduate training program. After completing the course, he gained experience in the field research laboratory, the vehicle and equipment laboratory, and in the field. He joined the engineering department in 1948 and received his Decatur appointment last December.

W. M. Champion has been appointed district manager for the **Air Reduction Sales Company** at Shreveport, La. Mr. Champion, who replaces **John Lund** who has left the company, has served in various sales capacities in the company's Oklahoma City (Okla.) office since 1946.

G. E. Burks has been elected vice-president of the **Caterpillar Tractor Company,** Peoria, Ill., a capacity in which he will have administrative direction of the company's program of research and of the engineering departments at four



G. E. Burks

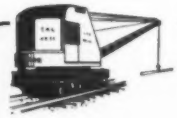
plants. Mr. Burks has been with Caterpillar for 26 years. He was made assistant chief engineer in 1938 in charge of engine design, and was named chief engineer in 1942. He was appointed director of engineering in 1953 and a year later was named director of engineering research.

Burro Cranes are the busiest units on the road because they can work anywhere . . . do virtually anything . . . and do it faster at lower cost. Burro's low overall height and short tail swing permit efficient operation on a flatcar . . . fast travel speeds and powerful draw bar pull give it a wider operating range on the track.

Write for Bulletins on Burro Cranes

Only **BURRO Cranes Give You All These Advantages**

- **Fast travel speeds . . . up to 22 MPH**
- **Draw bar pull of 7500 lbs. (often eliminates need for work train or locomotive)**
- **Elevated Boom Heels for working over high sided gondolas**
- **Short tail swing — will not foul adjoining track**
- **Low overall height — Burro can be loaded and worked on a standard flatcar.**



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Here's the Gulf program

for better maintenance of your *off-track* equipment...

1 the use of uniform high quality lubricants and fuels throughout your system to keep equipment operating smoothly and continuously.

2 expert petroleum engineering counsel that will help reduce your maintenance costs.

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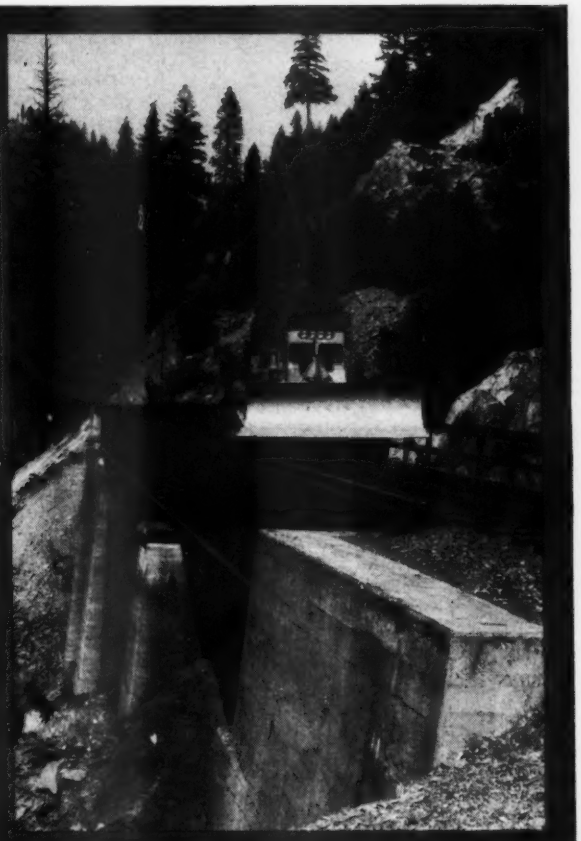

Photograph courtesy of Le Tourneau-Westinghouse Company, a subsidiary of Westinghouse Air Brake Company.

GULF has had wide experience over a period of many years servicing the equipment of leading earth-moving contractors. Now this experience can go to work for you as the basis of a comprehensive program to help insure smooth, dependable operation of your off-track equipment, and lower operating costs.

The Gulf four-point plan incorporates all the essentials of a successful maintenance program. And a Gulf Sales Engineer is always available to help you put it into operation throughout your system.

Contact your nearest Gulf office today and have a Gulf Sales Engineer explain how this program can benefit your operation. For your copy of the informative booklet, "Lubrication and Maintenance Guide for Contractors' and Allied Equipment," send the coupon at the right.

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Please send me, without obligation, my free copy of "Lubrication and Maintenance Guide for Contractors' and Allied Equipment."

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Company.....

Title.....

Address.....

CUSTOM-BUILT TRAILERS FOR M/W GANGS . . .

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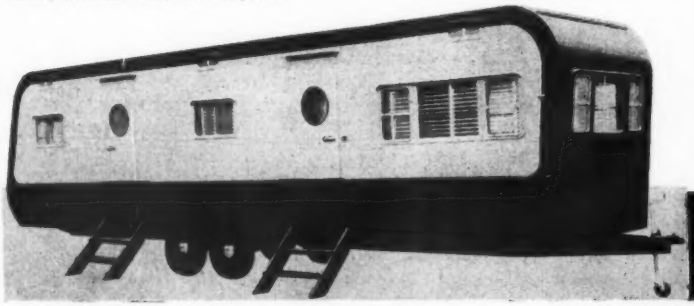
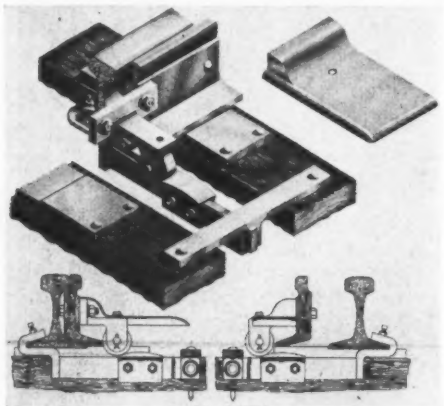
Eastern Railway Supplies, Inc., New York, N.Y.
Stanley H. Smith & Co., Cleveland, Ohio
Mr. Clarence Gush, St. Louis, Missouri
Mr. W. A. Blackford, San Leandro, California



Railroads are finding that it pays to give their M/W and bridge and building workers—"a home away from home" on jobs where it is inconvenient or impossible to get back to the home base.

Modern, custom-built trailers are ideal for this purpose. INTERNATIONAL has a complete line of kitchen-diner, bunk and office trailers—all built to a basic design which can be varied to suit individual needs. These sturdy, comfortable trailers are fabricated with aluminum sidewalls and are fibre glass insulated throughout. *Write for typical plans and complete information.*

INTERNATIONAL TRAILER CO., INC.
5712 Erdman Ave., Baltimore 5, Md.



GRAY-WADE
Railway Switch Point Roller

More than 900 Gray-Wade sets are now in use on representative roads. Note these important advantages:

- Reduces the energy required to operate the switch—50 to 75%.
- Eliminates the constant necessity for lubricating switch points since the point is lifted above the switch plate.
- No springs to become weakened or broken.
- Easy to install. No holes to drill in stock rails.

Write, wire or phone for complete information.

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ERIE

. . . our valued customer
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65 years

ERIE'S high standards of track efficiency depend on the reliable performance of such superior standard track accessories as these Cleveland products:

- **Rail-bound Manganese Frogs**
- **Solid Manganese Crossings**

Split Switches equipped with . . .

- **Cleveland Rocker Clips**

AND

- **Cleveland Heavy-duty Adjustable Rail Braces**

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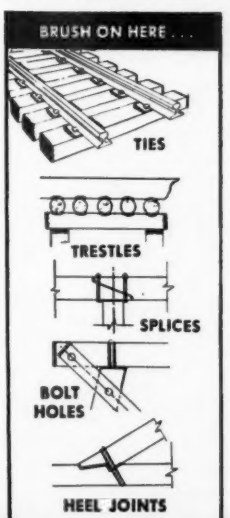
A DIVISION OF
PETTIBONE MULLIKEN CORP.

BRIDGE TIMBERS
LAST LONGER
COST LESS...
WHEN THEY'RE SPOT-TREATED WITH
OSMOPLASTIC

4 WAY CHEMICAL ACTION of Osmoplastic has proven itself highly effective over the years. B & B Engineers will find that this 4-way action seals out moisture and grit from the vital spots like bolt and spike holes, heel joints, splices and surfaces of stringers where they contact other members. Osmoplastic also hardens wood, which combats spike pull and reduces "plate cutting". Deep penetration by this famous wood treating product REINFORCES the preservative action of creosote in timbers, making structures last YEARS LONGER. CUTS maintenance costs drastically. So EASY to use! Just BRUSH ON where directed.



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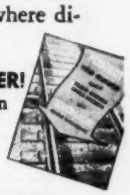

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TAPECOAT is a coal tar coating with a tar-saturated close-woven fabric as a carrier for speed of application. The coal tar is self-bonding and requires no foreign adhesives.

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TAPECOAT is sized to the job—comes in rolls of 2", 3", 4", 6", 18" and 24" widths to meet specific requirements on pipe, pipe joints, couplings, tanks, cable, conduit and other vulnerable steel surfaces.

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TAPECOAT has proved its dependability over the years in serving gas and oil companies, railroads, telephone companies, air lines, shipbuilders and operators, water and sewage works, chemical and industrial plants, engineers and contractors . . . providing continuing protection against corrosion.

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The TAPECOAT Company

Originators of Coal Tar Tape Protection

1541 Lyons Street, Evanston, Illinois

Manufacturers' Literature

Following is a compilation of free literature, pamphlets and data sheets offered by manufacturers to the railroad industry. Circle the number(s) on the coupon below to receive the desired information. Requested items sent direct by manufacturers.

1. TRACTOR PARTS. *Caterpillar Tractor.* Three 8-page booklets discuss research, testing and development of Caterpillar tractor parts. (A) "Filter Research, How & Why" on oil filters; (B) "How to Be Sure About Track Parts" on lightweight tracks for tractors; (C) "Friction Facts" on clutch facings and brake linings. *(Write-in A, B, or C on coupon to receive desired folder.)*

2. RAIL ANCHOR. *True Temper.* 8-page brochure (J-6514) "New, Improved True Temper Bulldog Rail Anchor" describes and illustrates (with photos, uses and manufacturing methods) new rail anchor.

3. COAL TAR COATING. *Tapecoat Co.* 4-page folder covers complete story of Tapecoat-X coal tar coating in tape form; includes table of coverage.

4. AUTOMATIC BOILERS. *Boiler Engineering & Supply.* 6-page folder (BE-3) describes and illustrates with photos and cutaway drawing Continental automatic boilers, oil or gas fired, in sizes 20 to 600-hp.

5. TRACTOR ATTACHMENTS. *Shawnee Mfg. Co.* Four 4-page bulletins describe, illustrate and give specifications on the loaders, buckets, clams and blades made by Shawnee. (A) Shawnee Loadmaster" on double bucket cylinder Loadmasters; (B) "Shawnee Special Loader;" (C) "Shawnee Hydro-Clam" on the clam which can convert to a backhoe; (D) "Shawnee Rear Blades." *(Write-in A, B, C or D on coupon to receive desired folder.)*

6. ALUMINUM PIPE. *Aluminum Company of America.* 18-page booklet (AD 197) "Aluminum Pipe and Fittings" presents characteristics and advantages for each of its major fields of application; includes specifications, description of fittings, installation methods.

7. TRUCK-MOUNTED CRANE. *Bucyrus-Erie.* Bulletin and 4-page specification list describe and illustrate the new all-hydraulic truck-mounted H-5 Hydrocrane; in easy-to-read style, amply illustrated with on-the-job photos.

8. CLAMSHELL BUCKETS. *Blaw-Knox.* 40-page bulletin (2373-R) "Maintenance & Care of Blaw-Knox Clamshell Buckets" contains photos, diagrams and carefully indexed data on use of counterweights, bucket reeving, bucket lip bending, cable life, welding procedures.

9. SNOW PLOWS. *Wm. Bros Boiler & Mfg.* 4-page 3-hole punched folder (RE-132) "Bros Front-End Loader Mounted Sno-Flyer Rotary Snow Plows" describes, illustrates, gives specifications on Series A rotary snow plows for wheel-type tractors and jeeps.

10. TURBOCHARGED ENGINES. *Cummins Engine.* 16-page booklet (12009) "More Profit With Cummins Turbodiesels" describes and illustrates the five Cummins Turbodiesels; includes working drawings and charts on fuel consumption, horsepower, engine weight.

11. COLOR ANODIZING ALUMINUM. *Reynolds Metals.* 4-page 3-hole punched "Technical Advisor" (31) presents recent developments in color anodizing aluminum, of special interest to architects, designers, engineers, and builders because they permit putting color into building exteriors made with aluminum; also includes other aluminum information.

12. LIGHTING EQUIPMENT. *Rohm & Haas.* 16-page brochure (PL-242) "Outdoor Lighting With Plexiglas" outlines the advantages of Plexiglas lighting fixtures and depicts various types of installations (tunnels and underpasses, parking areas, stations, etc.).

13. CONCRETE FLOOR REPAIRS. *Master Builder.* 7-step procedure for repairing concrete floors with non-shrink mortar described in folder (EPMM-4); each step illustrated with photo and description.

14. ALLOYS & FLUXES. *All-State Welding Alloys.* Folder "How To Use and Apply All-State Alloys and Fluxes For Welding, Brazing, Soldering, and Cutting Steel" answers users' questions with regard to the increasing number of alloys and fluxes All-State offers for work on steel in maintenance, production and construction.

15. REINFORCED PLASTIC. *Minnesota Mining & Manufacturing Co.* 20-page reference manual (P-SPRM) in file-folder style describes advantages, applications, procedures for use of "Scotchply" brand reinforced plastic; 62 illustrations show uses; includes pricing data.

16. STAINLESS STEEL FASTENINGS. *Star Stainless Screw.* 24-page catalog (55-A) "Stainless Steel Right Off The Shelf" describes, illustrates, gives specifications on all types of stainless steel fastenings by Star; special section gives corrosion resistance tables.

17. HOSE COUPLING. *Titeflex, Inc.* 20-page catalog (7-55-20) "The Higher The Pressure, The Tighter The Seal" describes and illustrates with photos and drawings Quick-Seal line of quick-disconnect hose couplings and accessories.

Reader Service Department **December, 1955**
Railway Track and Structures
30 Church Street, New York 7, N. Y.

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Also, please send me product information on the following (show product & page number): .....

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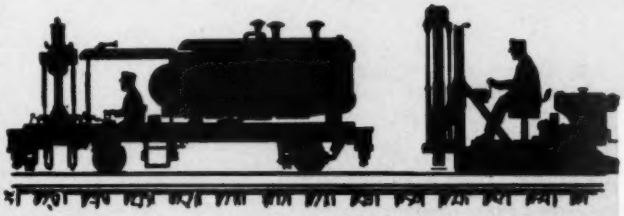
EXTRAORDINARY SAVINGS

in this Track Maintenance Combination

1. R.M.C. TieMaster removing old ties and inserting new ones at a rate of one per minute.
2. R.M.C. SpikeMaster nipping up the ties and driving four spikes.
3. McWilliams Ballast Distributor placing ballast in perfect position for tamping.



4. McWilliams Tie Tamper with split head using controlled pressure to compact ballast under the ties.
5. R.M.C. LineMaster aligning the track by moving it horizontally in either direction.

Each of the machines shown here is recognized as the most efficient and economical means of doing its job. When used in combinations of two or more machines, R.M.C. Equipment provides even greater savings in track maintenance costs.

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INCREASE SAFETY OF OPERATIONS BY USE OF Q AND C DERAILS

Install Q and C Derails at clearance points to help guard against interruptions in sevice on your principal tracks.

Hand Throw, Sliding or Portable Types are available, all adjustable for a range of rail sizes, which eliminates waste of adzing or shimming of ties, also reduces inventory.

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All products are manufactured in the U.S.A. to A.S.T.M. specifications

Bolts also available with std. sq. nuts.

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SPECIFY SEALED-TITE ZINC COATING

Sealtite products sealed in zinc give twice the wear and greater economy by cutting expensive replacements. For Double-Life and freedom from corrosion, specify Hot-Dip Galvanized . . . Sealed in Zinc!

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INCREASE the LIFE of Bridge Floors over Railroad Passings!
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Resurfacing Wood Decking
HEXTEEL heavy duty steel floor armor creates a steel surfaced floor capable of withstanding maximum moving loads. Easily installed with mastic composition or asphalt fill for resurfacing wood decking. Prolongs the life of bridge floors.
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Send us data on your bridge floor and load conditions today!
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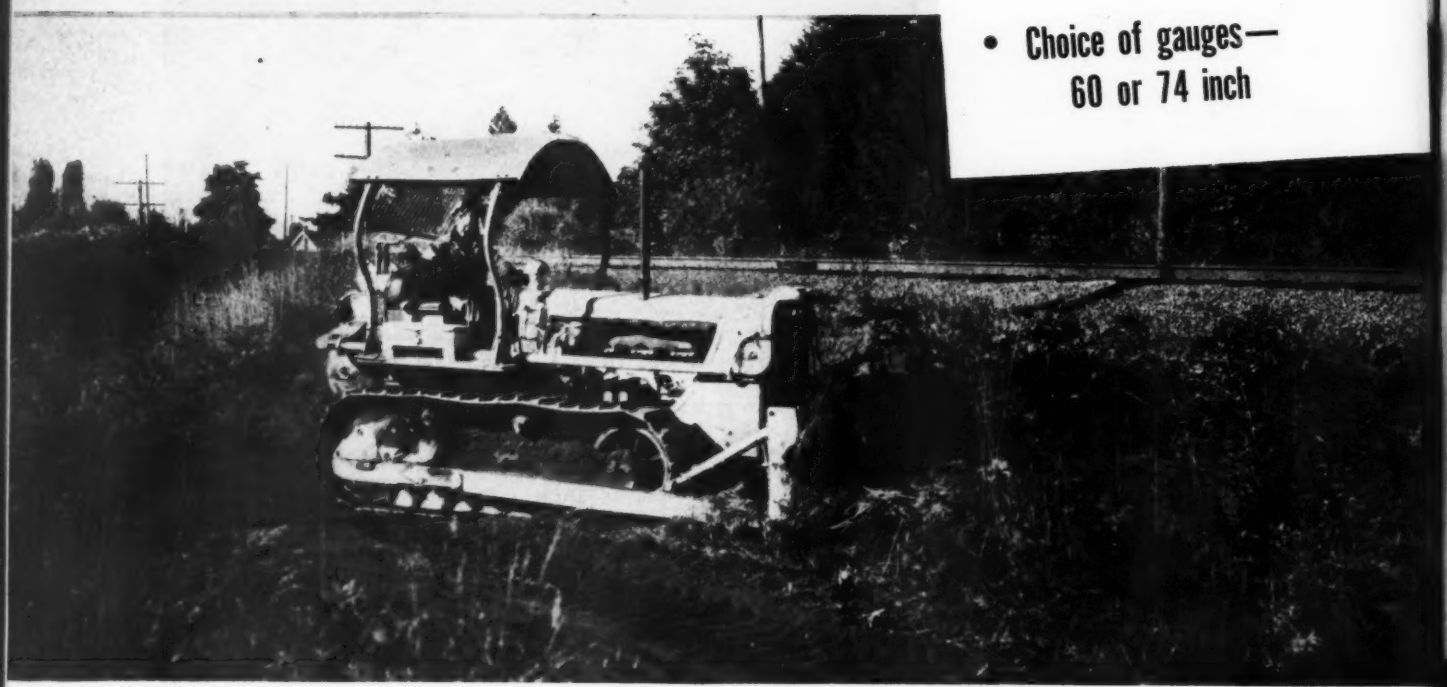
ON THE GREAT NORTHERN

The D6 makes off-track cleaning a quick, low-cost job

The CAT D6 Tractor gives you:

- 75 drawbar horsepower
- New oil-type flywheel clutch
- Finger-tip steering
- Five speeds forward—four reverse
- Choice of gauges—60 or 74 inch



The Caterpillar D6 Tractor is cleaning and shaping right-of-way at the rate of a half-mile per day for the Great Northern Railway near Marysville, Washington. It is one of four CAT* Diesel Tractors on the job in the division.

These hard-working machines, equipped with bulldozers, keep railroad production high and costs low for a number of exclusive Caterpillar reasons. The great new oil-type flywheel clutch is an example. Not only does it add dependability but it reduces service and maintenance costs. Clutch adjustments are rarely needed. Disc replacements are required no more often than engine overhauls.

And the bulldozer is an important part of the economy story. The moldboard is engineered to roll earth forward and hold large loads on the blade. It can be both tilted and tipped by *one man*. Box-section reinforcements run the entire length of the blade for rigidity. All these features contribute to the machine's ability to deliver big production at low cost.

Your Caterpillar Dealer will carry *your* inventory of Cat parts—parts you can trust. And you can be sure he will understand *your* off-track maintenance problems. Why not call him today and ask for a demonstration of the dependable equipment that will do your job quicker and more economically?

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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Nalco WEED CONTROL

Helps Keep Maintenance Costs Down on the ERIE

Combining excellent maintenance records with unusually low total costs is an achievement that the Erie Railroad—and more particularly Mr. Blair Blowers, Chief Engineer, and his Staff—report with justifiable pride.

Use of Nalco Weed Control along Erie right-of-way is a part of the complete picture of effective, economical maintenance. Chances are good that the complete range of Nalco Weed Control Chemicals and Nalco Spray Car Services can help you cut costs on all-season weed control. Call your Nalco Representative for details; or write direct.

NATIONAL ALUMINATE CORPORATION

SPRAY SERVICES DEPARTMENT

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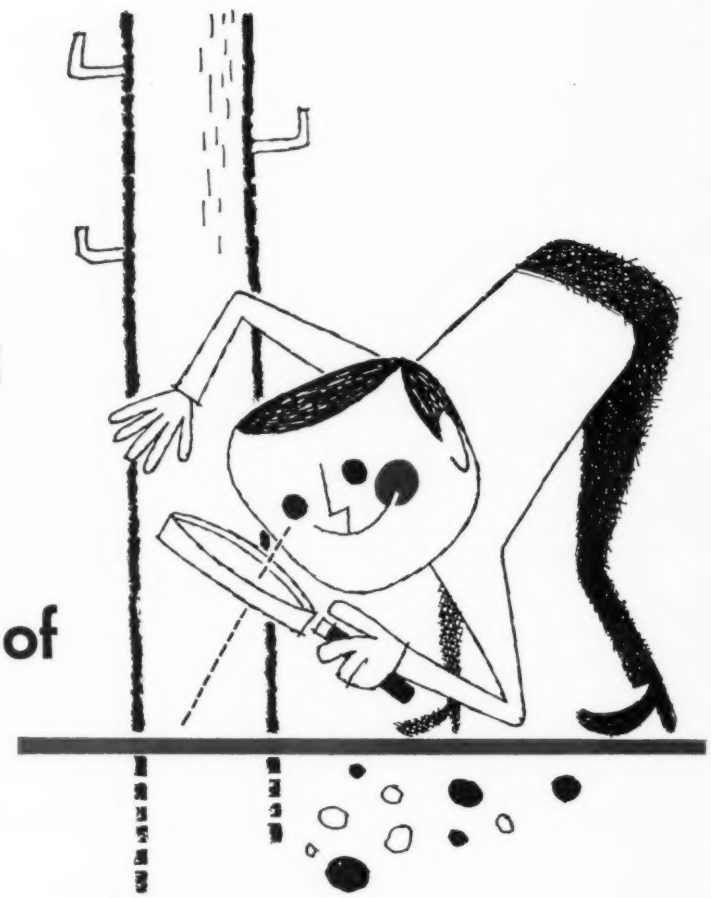
In Canada: Alchem Limited, Burlington, Ontario

Nalco

Serving Railroads through Practical Applied Science

TEXACO PROTEXACOTE prevents ground-line deterioration of wood poles and piling



Most pole failures start at the ground line. Primary causes are surface water, air, bacteria and fungi. Surface water tends to leach out the original chemical preservatives and make the ground-line section of the pole vulnerable to attack by soil bacteria and fungi, promoting cracks and causing rotting. If the pole is not protected, its life is bound to be shortened—and replacements are expensive.

Texaco Protexacote has been specially developed to provide effective protection from the ground line down. It is an asphaltic product, strengthened by asbestos fibers and cut back with a solvent for easy application. It contains a preservative agent.

When applied to poles or piling at and below the ground line, *Texaco Protexacote* sets up and maintains a pliable, tough coating that is impervious to moisture and that seals in the original wood preservative. This prevents surface water, air, bacteria or fungi from entering the wood and gives lasting protection at the point where serious deterioration is most likely to occur.

Application of *Texaco Protexacote* is simple and requires no expensive equipment. It can be brushed or sprayed on at summer temperatures. *Texaco Protexacote* may also be used to seal the tops of poles and ends of cross arms against moisture—and is an excellent anti-rust for pole hardware.

A Texaco Representative will gladly give you full information. Just call the nearest Texaco Railway Sales Office in New York, Chicago, San Francisco, St. Paul, St. Louis or Atlanta. Or write:

☆ ☆ ☆

The Texas Company, *Railway Sales Division,* 135 East 42nd Street, New York 17, N.Y.

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